THIRD SERIES VOL 64 NUMBER 1 NOVEMBER 1956

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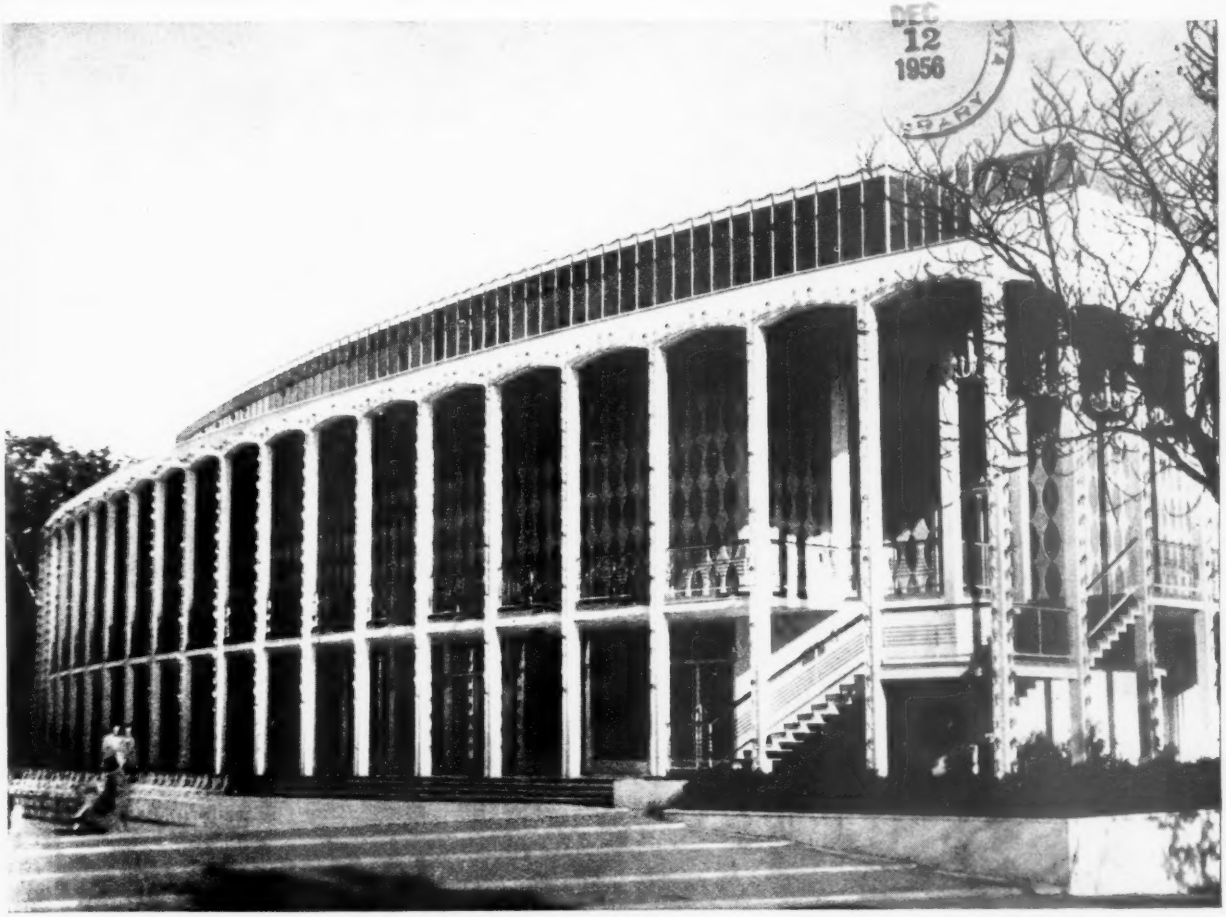
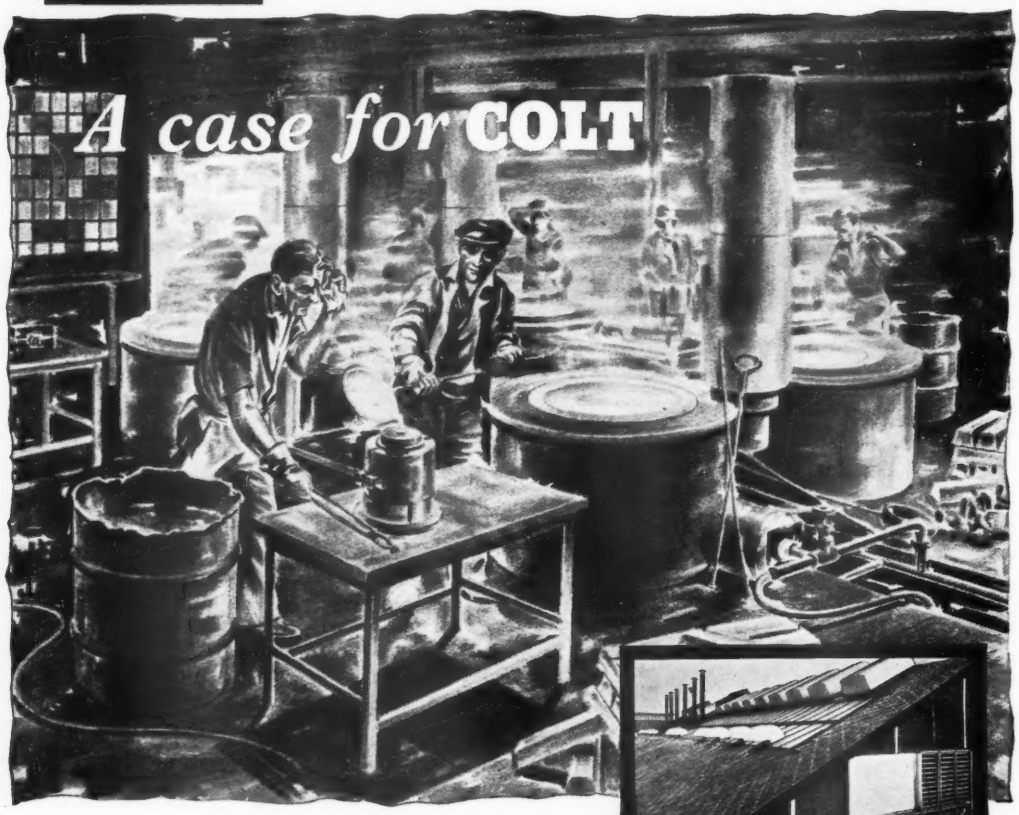


Concert Hall at Tivoli, Copenhagen. Architects: Hans Hansen and Frits Schlegel

Problem No. 5 Intense process heat



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NOVEMBER 1956 THIRD SERIES VOL 64 NUMBER 1 TWO SHILLINGS AND SIXPENCE

EDITORIAL

Memorial to John Nash

On the muggy, drizzling afternoon of 18 October, the unveiling ceremony of the portrait bust of John Nash was performed by the Rt. Hon. Patrick Buchan-Hepburn, Minister of Works, in the presence of a small invited audience seated on the steps of All Souls, Langham Place.

His Worship the Mayor of St. Marylebone gave the history of events leading up to the memorial and described the work of the committee on which the Royal Institute was represented by Mr. John Summerson, C.B.E. [*A*].

The Minister paid an eloquent tribute to Nash before unshrouding the bust, and the vote of thanks was proposed by Mr. Kenneth M. B. Cross, President R.I.B.A., whose words came very clearly and well over the microphone. The rector of All Souls, the Rev. J. R. W. Stott, then dedicated the memorial, after which guests went on to the R.I.B.A. for tea.

Excerpts from the speeches of the Minister and the President and from a broadcast on the same evening given by Mr. Gontran Goulden, T.D. [*A*], President of the Architectural Association, are given on p. 8.

The bust, by Mr. Cecil Thomas, O.B.E., F.R.B.S., is nine feet high including its base, and was reproduced from the plaster copy in the R.I.B.A. of the marble bust by William Behnes to one and a half times size. Mr. H. S. Goodhart-Rendel, C.B.E., Past President, architect to the parochial church council, was responsible for the architectural work. The memorial is sited in the portico of All Souls, Langham Place, and looks south. This position was chosen by the committee since it is on the axis of Nash's London development and also because All Souls is the only surviving London church designed by him, and its spire earned him at the time the notorious lampoon showing him in his tight Regency trousers spitted upon it.

The credit for initiating, albeit so tardily, a worthy memorial to Nash goes to the St. Marylebone Society, who were supported financially and otherwise by the London County Council. Represented on the Memorial Committee were: The London Society, the Georgian Group, the R.I.B.A., Sir John Soane's Museum, the Royal Society of Arts, the St. Marylebone Society, the L.C.C., the City of Westminster, the Metropolitan Borough of St. Pancras, the Office of Commissioners of Crown Lands and All Souls Church, Langham Place. The Memorial bears the inscription JOHN NASH 1752–1835, ARCHITECT.

Presentation to Mr. Sydney Tatchell, C.B.E. [*F*]

The Joint Tribunal on the Standard Form of Contract was set up immediately following the publication of the 1931 R.I.B.A. Standard Form of Contract in order to review the working of the document, advise on necessary amendments from time to time and give guidance generally. At that time there were four members from the R.I.B.A. and four from the N.F.B.T.E. At the first meeting of the Tribunal in 1932 Mr. Sydney Tatchell was unanimously elected Chairman with Mr. C. D. Spragg and Mr. Norman H. Walls (N.F.B.T.E.) as Joint Secretaries. (Mr. Walls was subsequently succeeded by Mr. Howard A. Close in this office.)

In June 1956 Mr. Tatchell said he would like to retire from the Tribunal, and the Council of the Royal Institute reluctantly agreed to accept his resignation as one of the R.I.B.A. representatives, at the same time recording their grateful thanks for his sterling services over this long period. When Mr. Tatchell's resignation was reported to the Tribunal they unanimously elected Sir Percy Thomas (Past-President) as Chairman in his place. Sir Percy himself has been a member of the Tribunal for twenty years except for the two periods during which he held the office of President.

The Tribunal felt very strongly that Mr. Tatchell's devoted services as Chairman should be marked in some tangible form, and at a luncheon in his honour held at the Royal Institute on 12 October he was presented with a silver inkstand suitably inscribed.

Sir Percy Thomas, who made the presentation, referred to Mr. Tatchell's genial chairmanship which had contributed so much to the happy and friendly atmosphere so characteristic of the proceedings of the Tribunal. No formal vote had been called for during the whole of the Tribunal's existence.

Mr. Tatchell in thanking Sir Percy and the Tribunal spoke of those original members of the Tribunal who had given yeoman service and of the subsequent expansion of the Tribunal by the inclusion of representatives of the R.I.C.S., and more recently by the addition of members representing the various associations of local authorities. He spoke of the magnitude of the task which the Tribunal had undertaken in making a complete and thorough review of the document. In conclusion Mr. Tatchell expressed his gratitude to the members of the Tribunal and in particular to the Joint Secretaries for their co-operation and support during his long period as Chairman.

1

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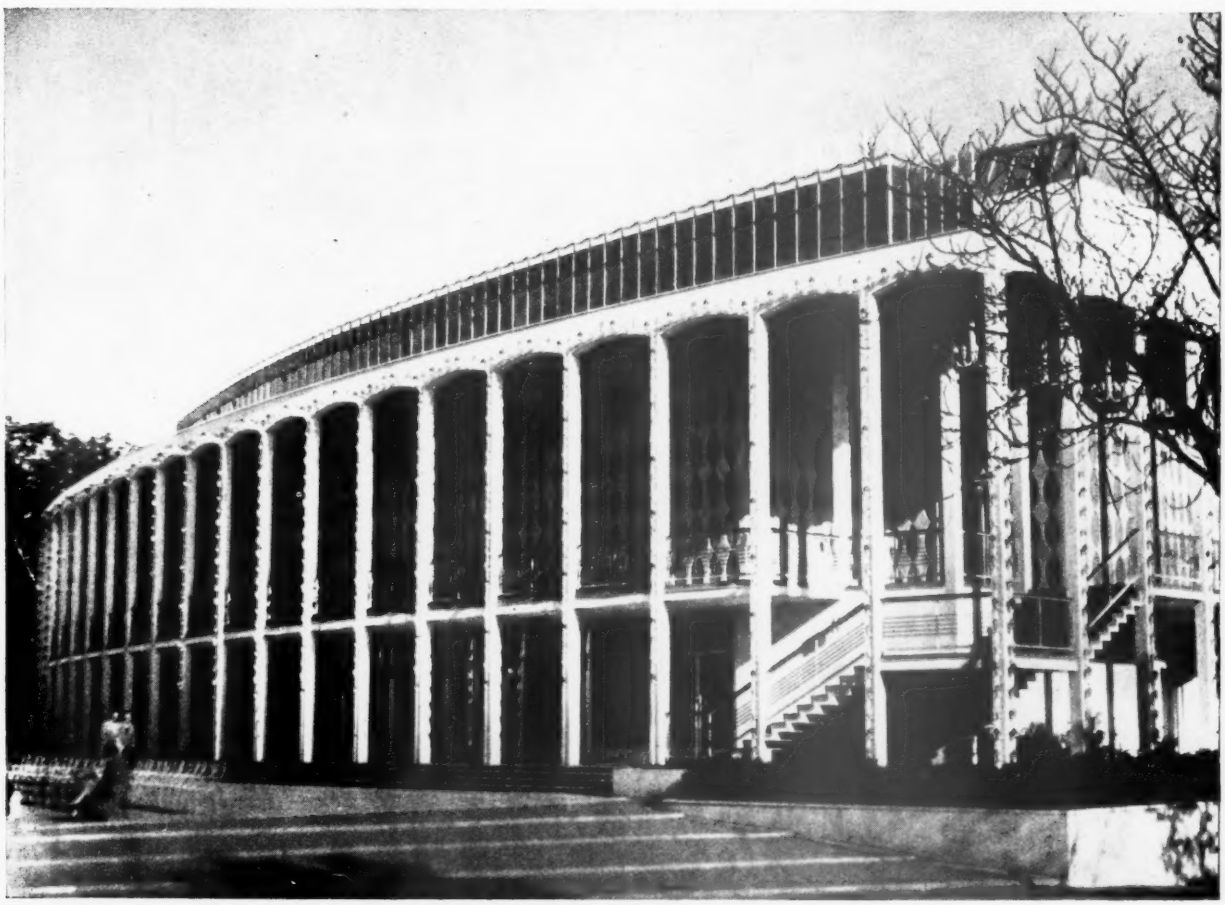

Concert Hall at Tivoli, Copenhagen. Architects: Hans Hansen and Frits Schlegel

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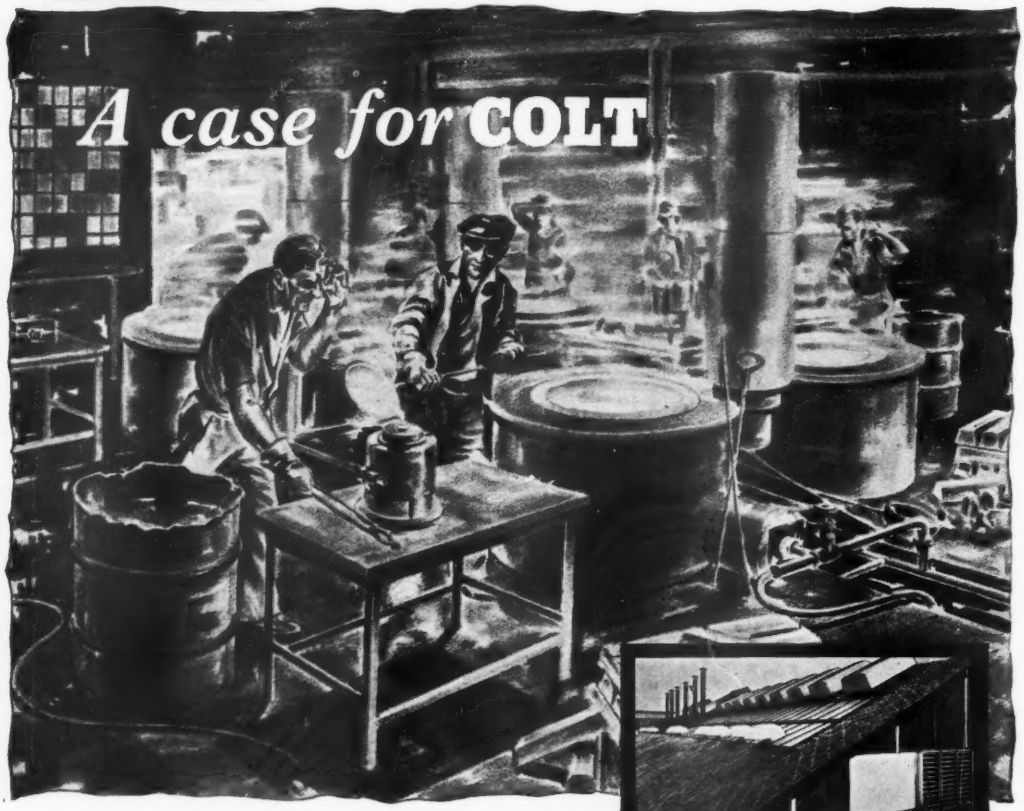
Problem No. 5 Intense process heat

A case for COLT



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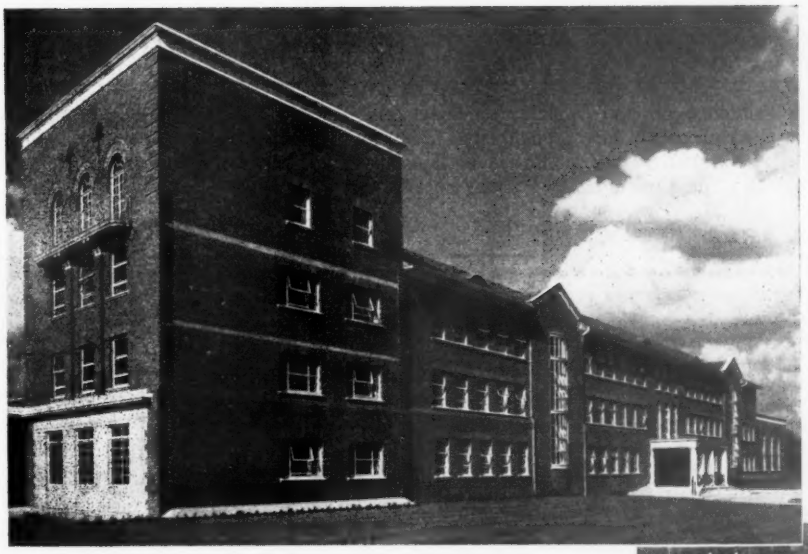

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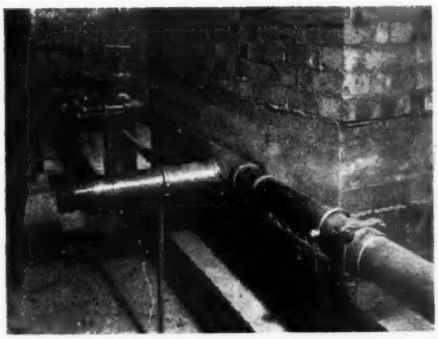

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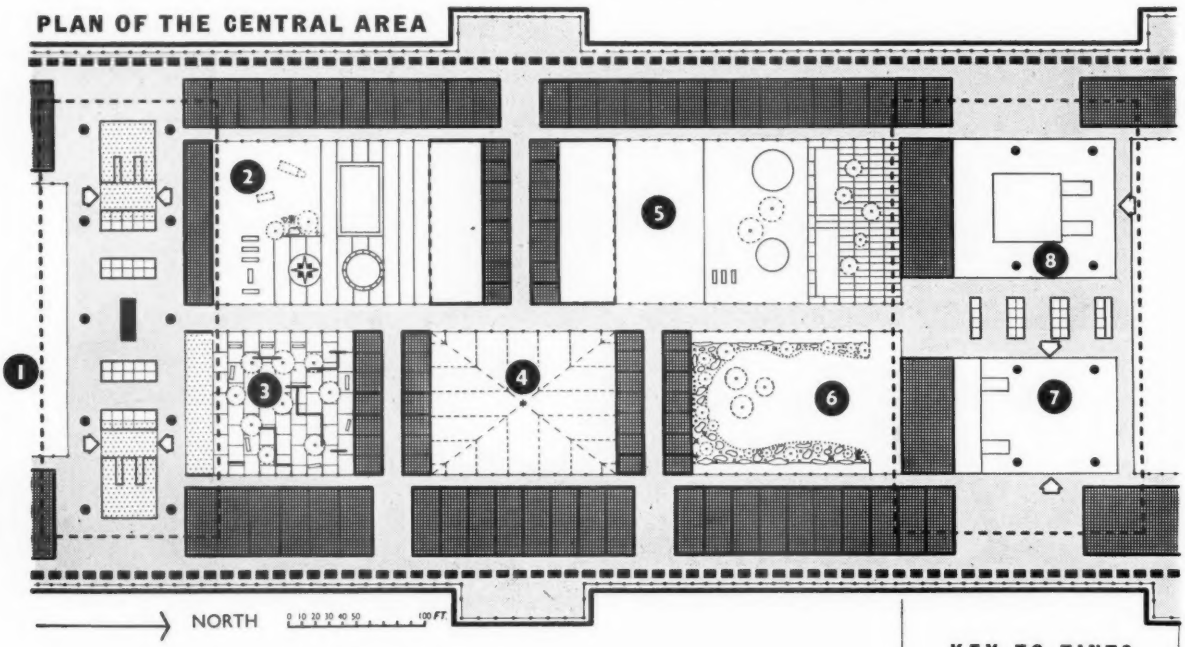
The Glass Age Development Committee

The Glass Age Development Committee consists of architects and engineers; it was convened by Pilkington Brothers Limited. The Committee has made proposals for creating a large scale shopping centre in the Black Country area. The primary survey and details have already been published, and it is called "The High Market Project", and has been designed under the direction of the Committee by Gordon and Eleanor Michell, A/A.R.I.B.A.



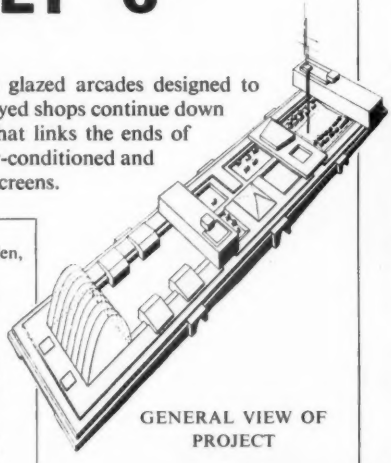
THE HIGH MARKET 6

CENTRAL AREA

The central area is divided into five open spaces by glazed arcades designed to accommodate very small shops. The larger single-storeyed shops continue down each side, and in the centre there is a covered way that links the ends of the arcades. The whole of this shopping area may be air-conditioned and enclosed during winter months by removable glazed screens.

KEY

1. Department Store above
2. Playground at the south end
3. Paved garden
4. Tropical plant house
5. Creche with enclosed garden, and covered play space
6. Café with informal gardens bounded by shallow moats
7. Exhibition Hall with stairs to restaurant, ballroom and administration offices over
8. Stairs to cinema with illuminated aquarium under large half landing

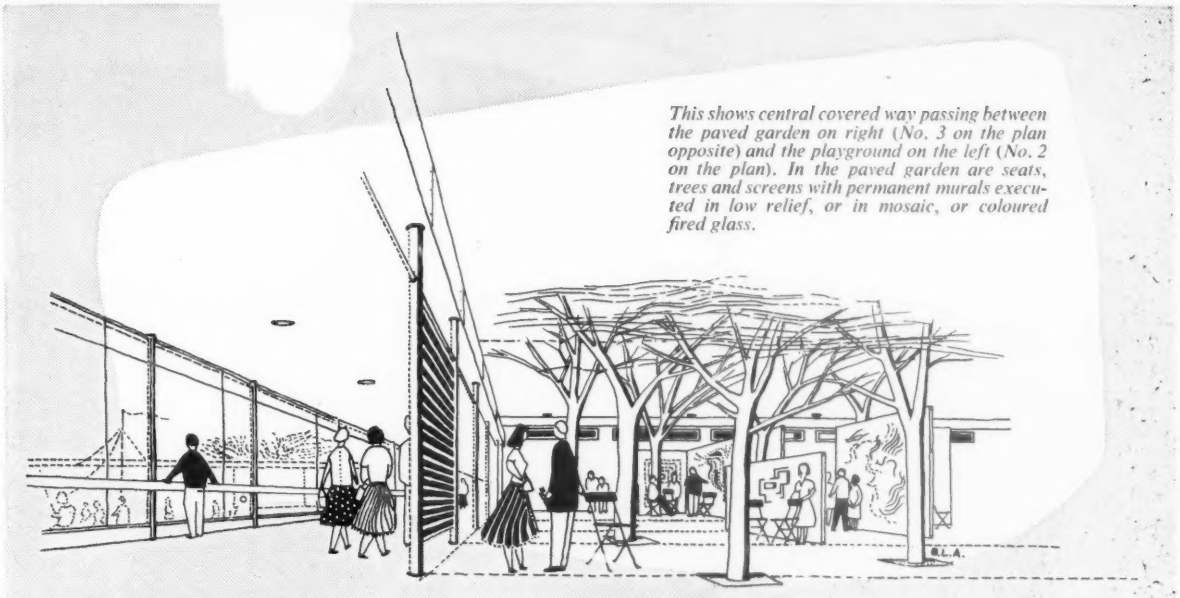


GENERAL VIEW OF PROJECT

KEY TO TINTS ON PLAN

- *Covered shopping area*
- *Single-storey shops*
- *Shoppers' lifts from car parks*
- *Goods lifts*
- *Moving articulated platforms*
- *Entrance to Department Store with lifts, escalators and display space. Dotted lines represent Department Store above*

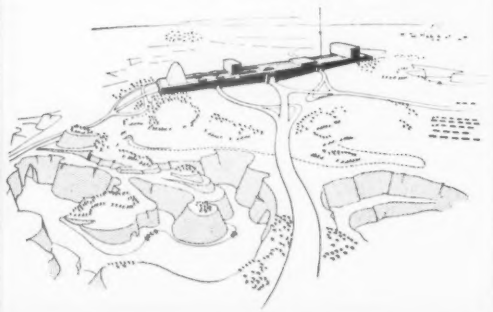
PILKINGTON BROTHERS



This shows central covered way passing between the paved garden on right (No. 3 on the plan opposite) and the playground on the left (No. 2 on the plan). In the paved garden are seats, trees and screens with permanent murals executed in low relief, or in mosaic, or coloured fired glass.

Interior of one of the closed arcades. The small shops on each side rise to a greater internal height than the arcade which allows them to have clerestory lighting in the front over the arcade roof. Unlike the other shops in the "High Market" they have no basement stores, and are serviced by communal lifts at the ends of the arcades.

Reduced bird's eye view of the area and site of the project.



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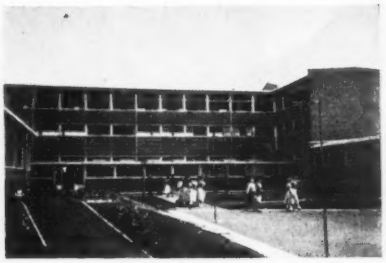
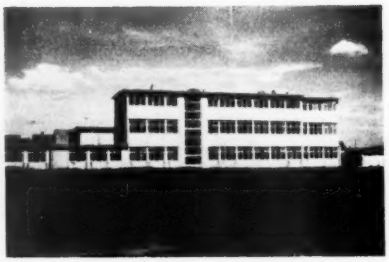
A Triumph of Schools Construction

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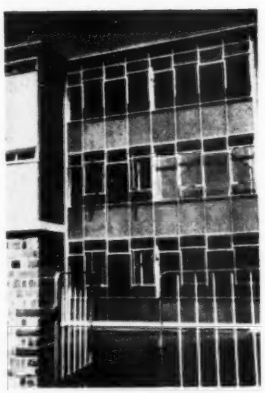

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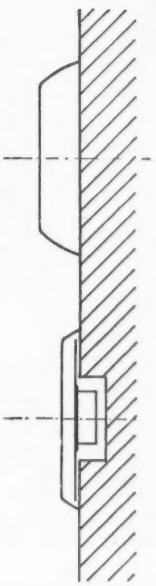

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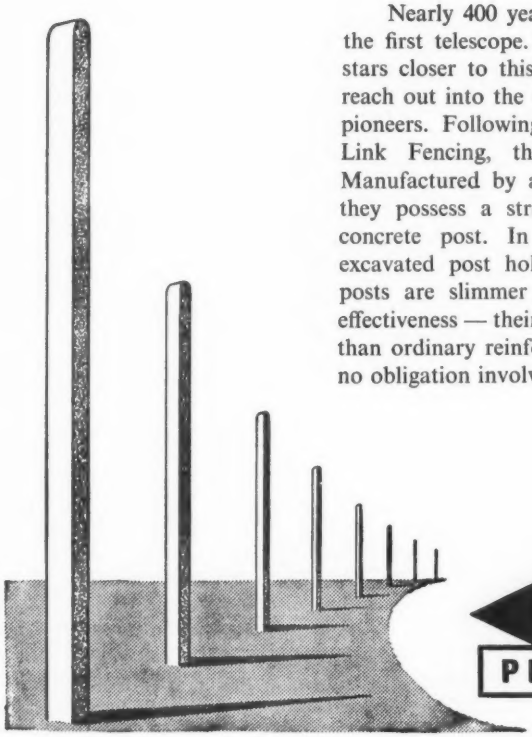

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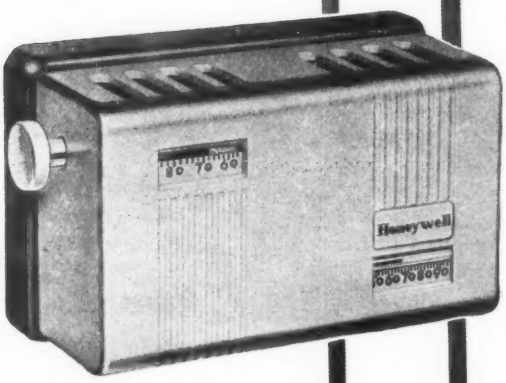

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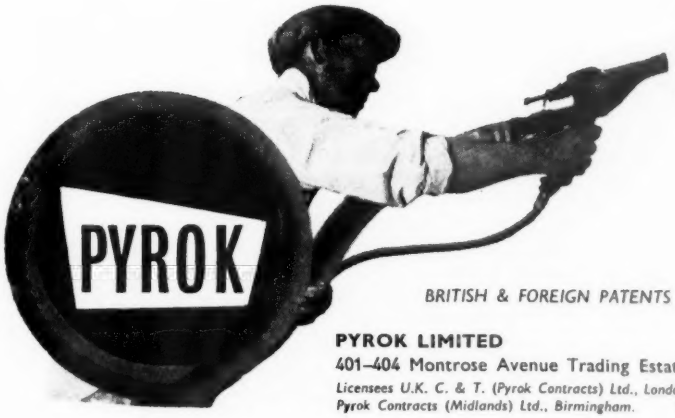

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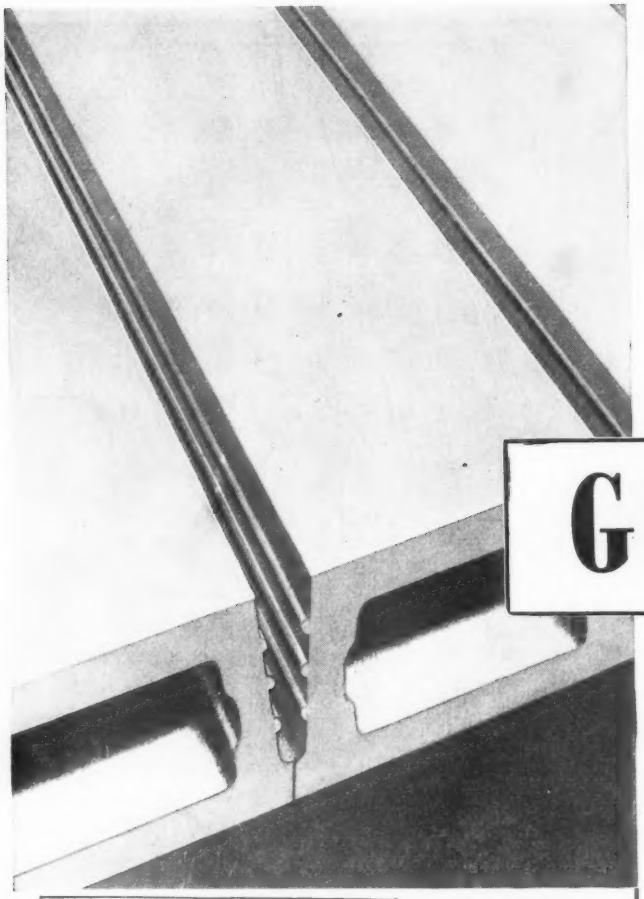

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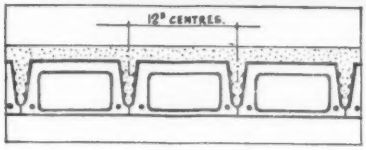
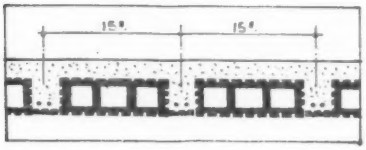
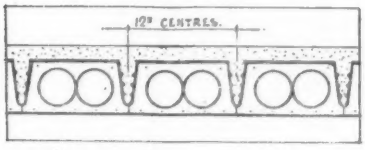


Normal Reinforced Concrete Beam supplied in any lengths up to 17' 6"



Hollow Tile Reinforced Concrete Floors



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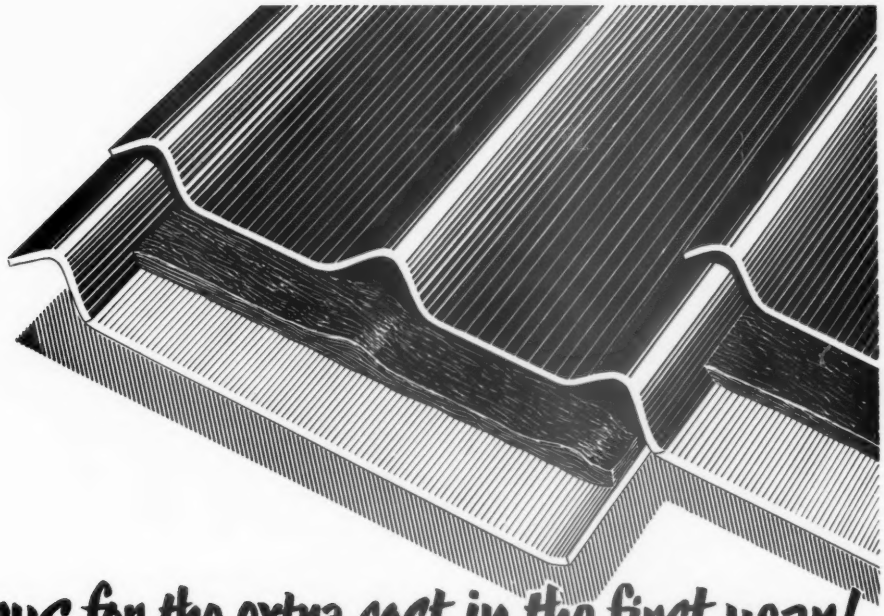

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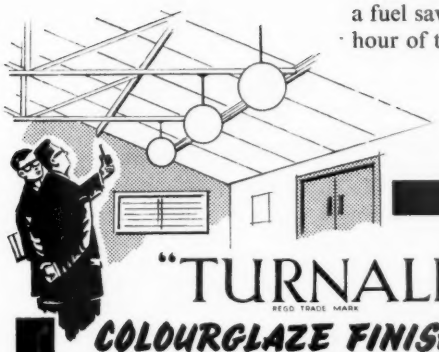

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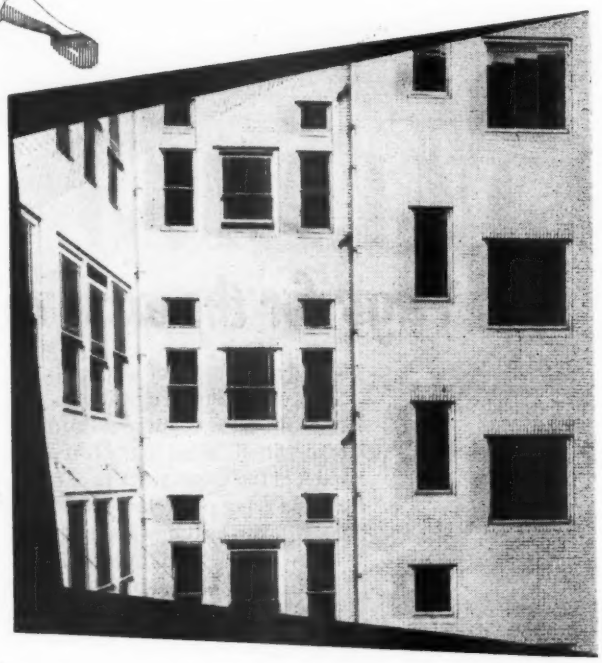

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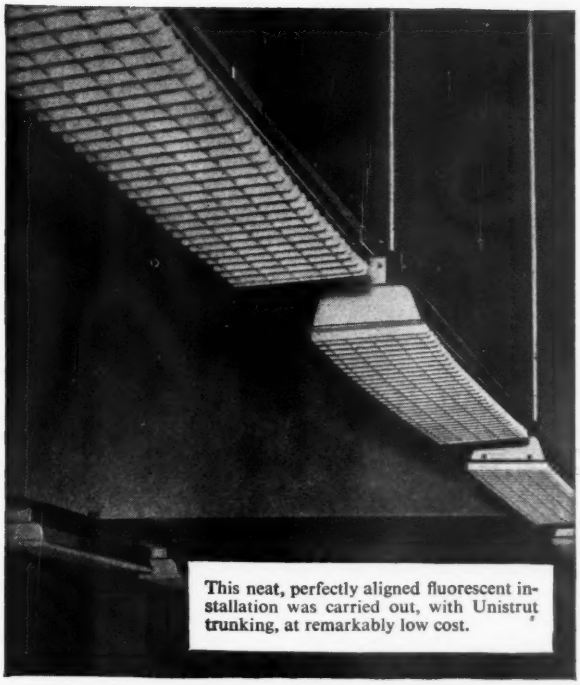

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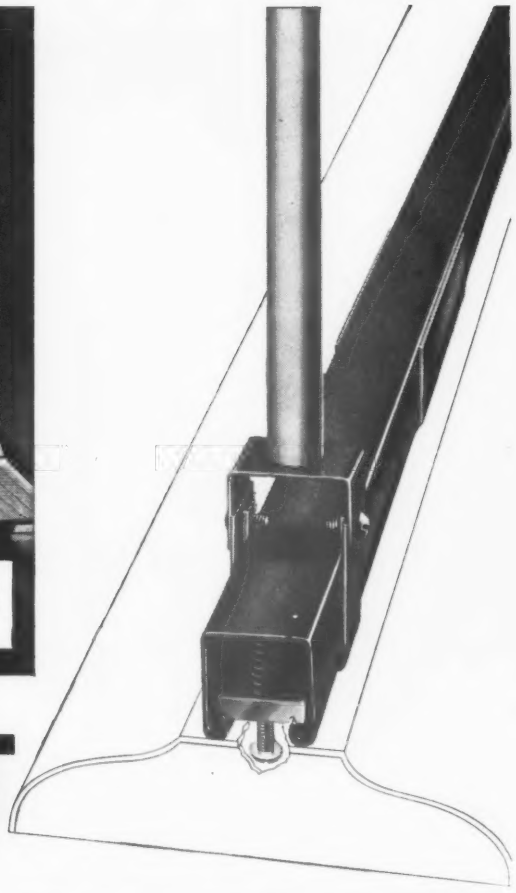

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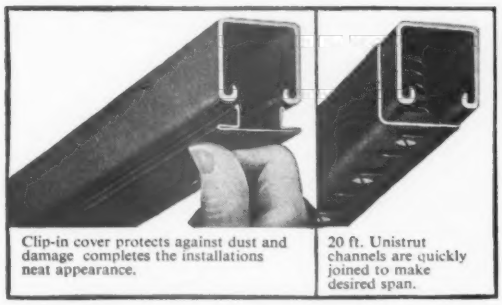

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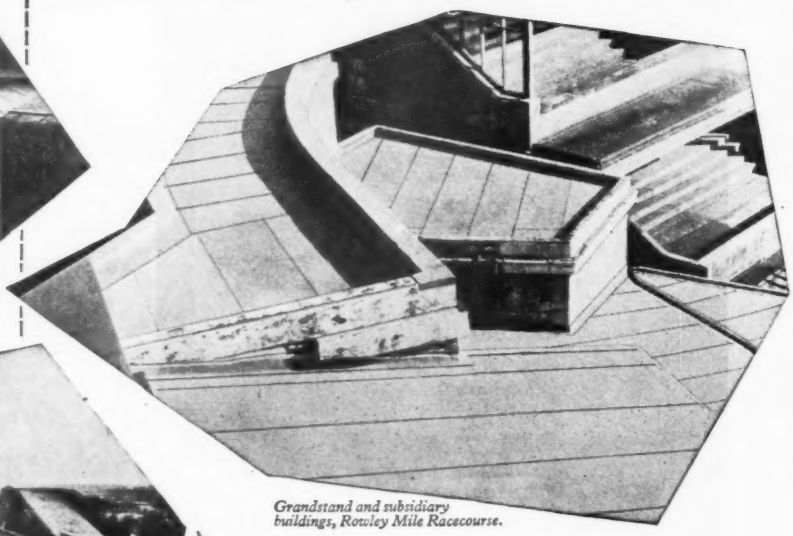
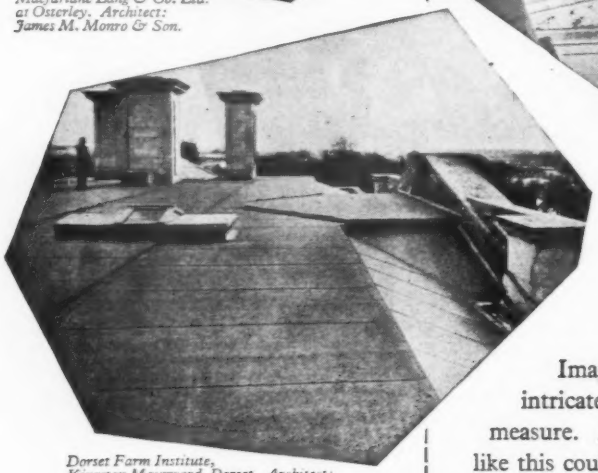


Grandstand and subsidiary buildings, Rowley Mile Racecourse.



Dorset Farm Institute, Kingston Maurward, Dorset. Architect: H. E. Matthews. County Architect (Restoration): J. Hurst, A.R.I.B.A.

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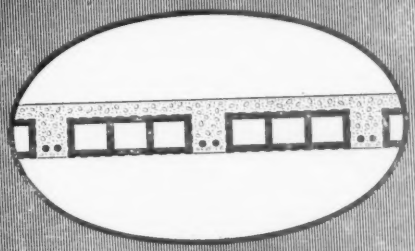

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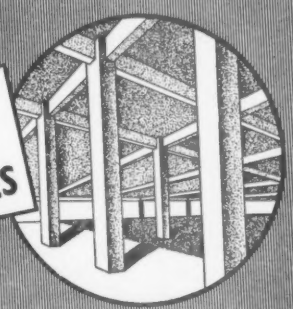

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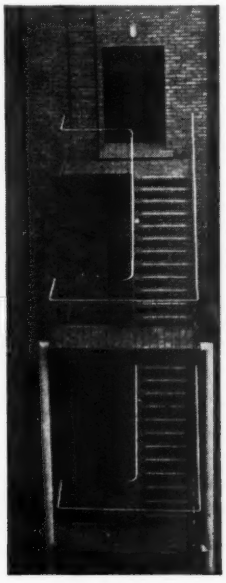

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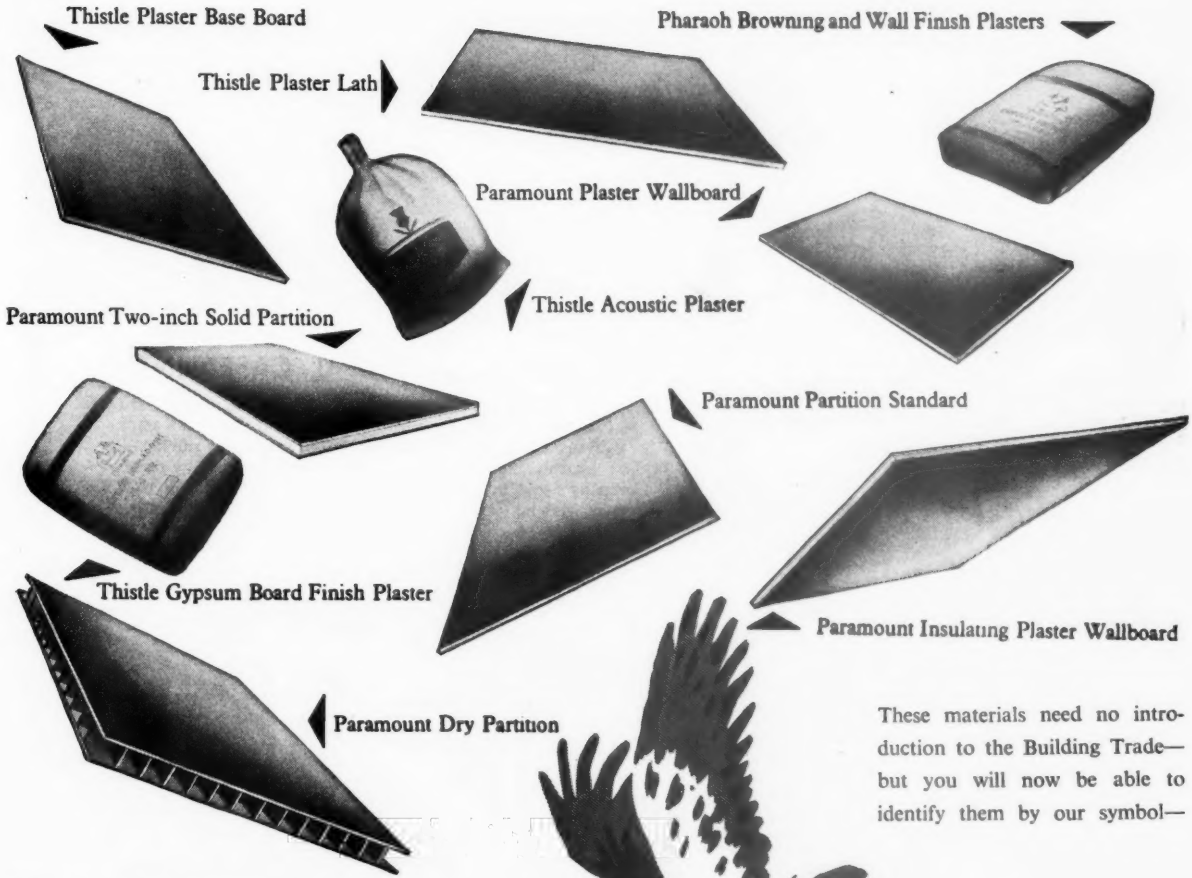

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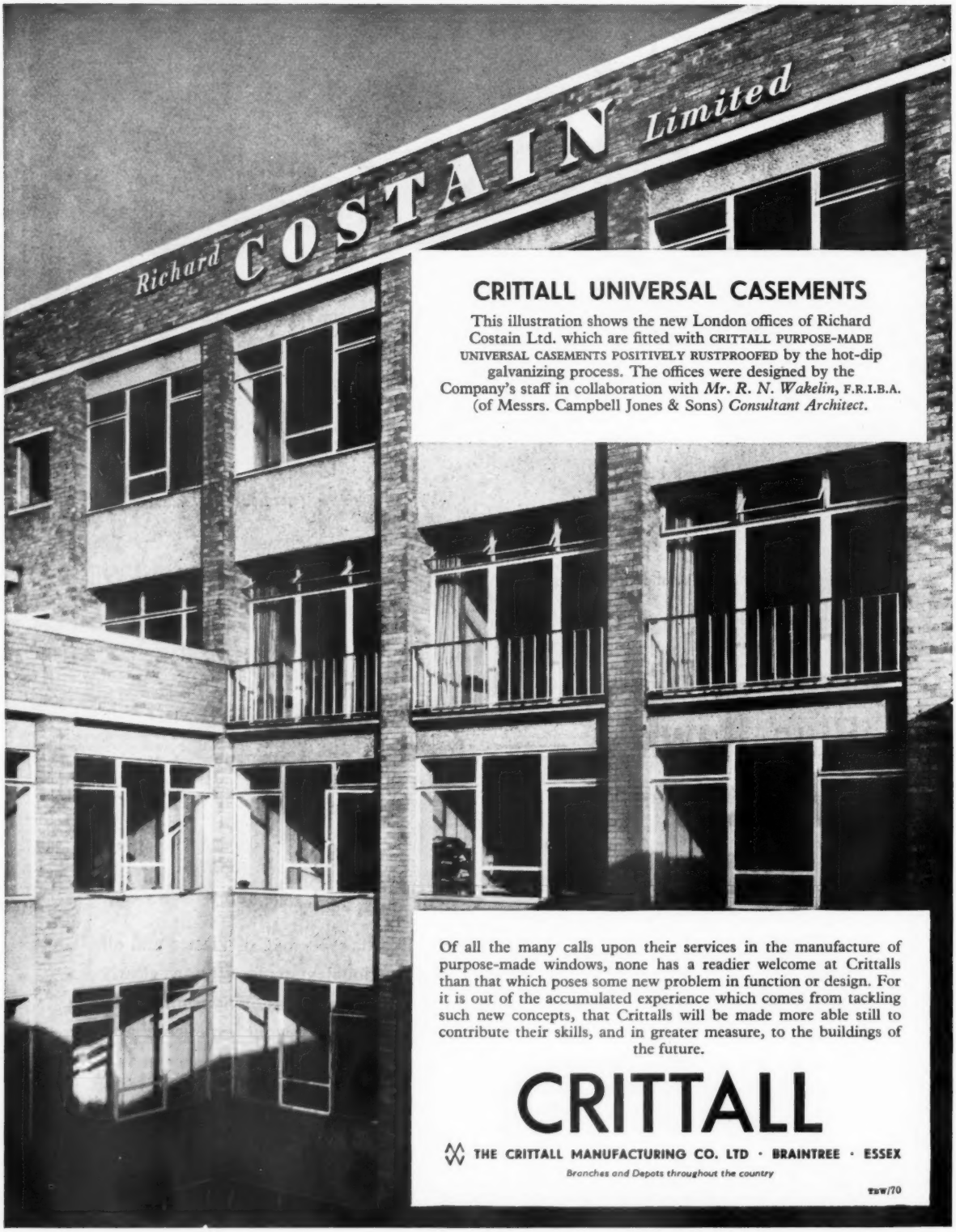

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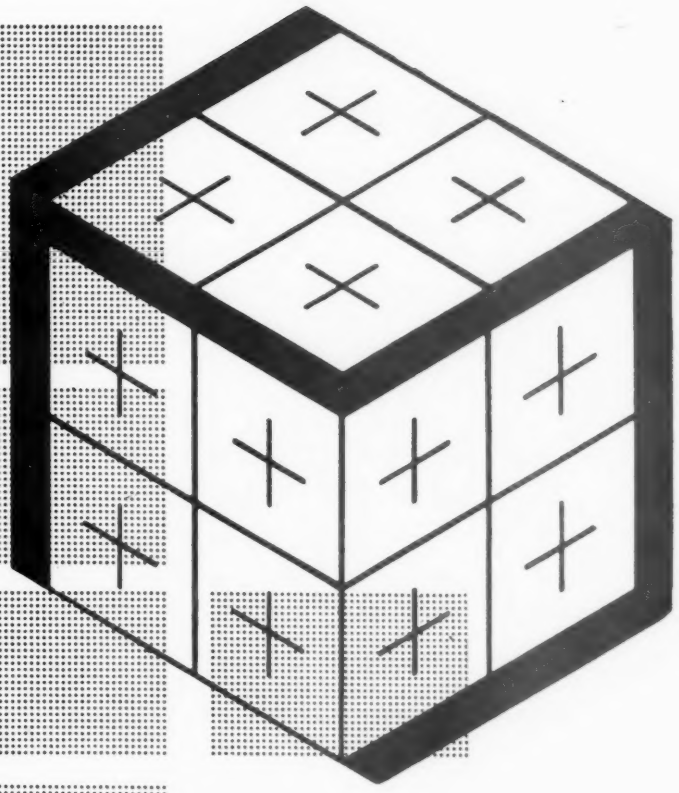

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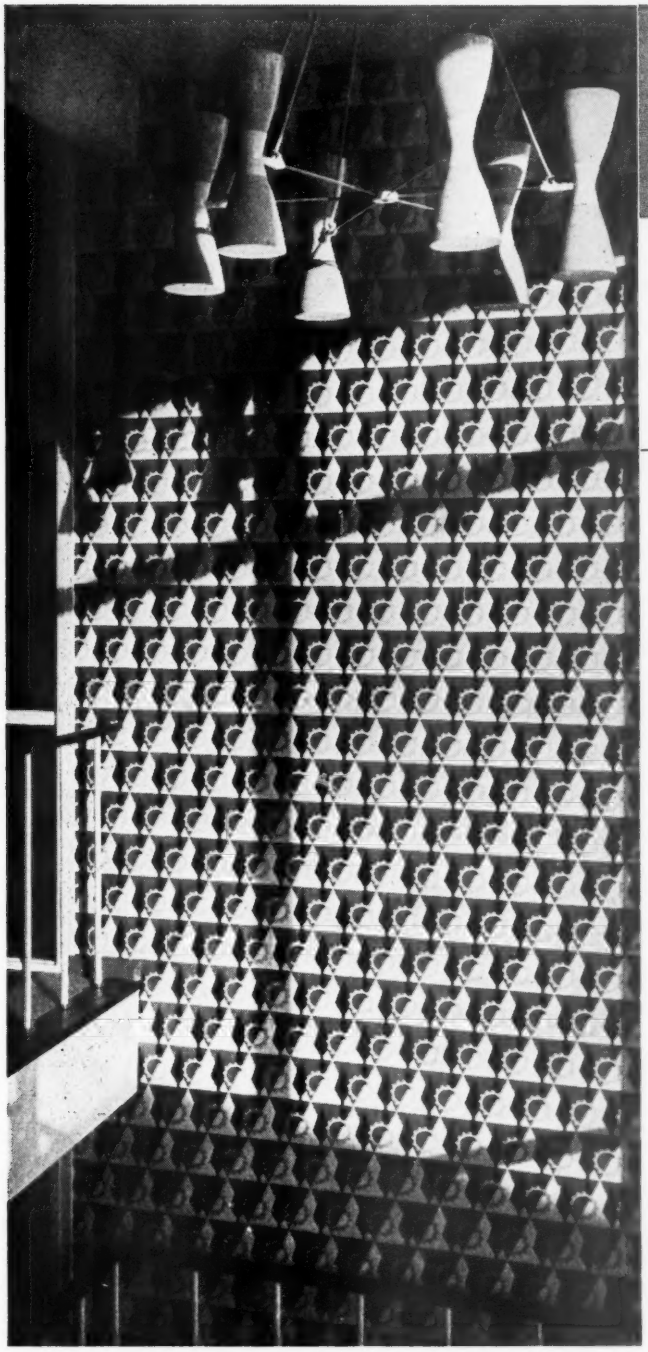

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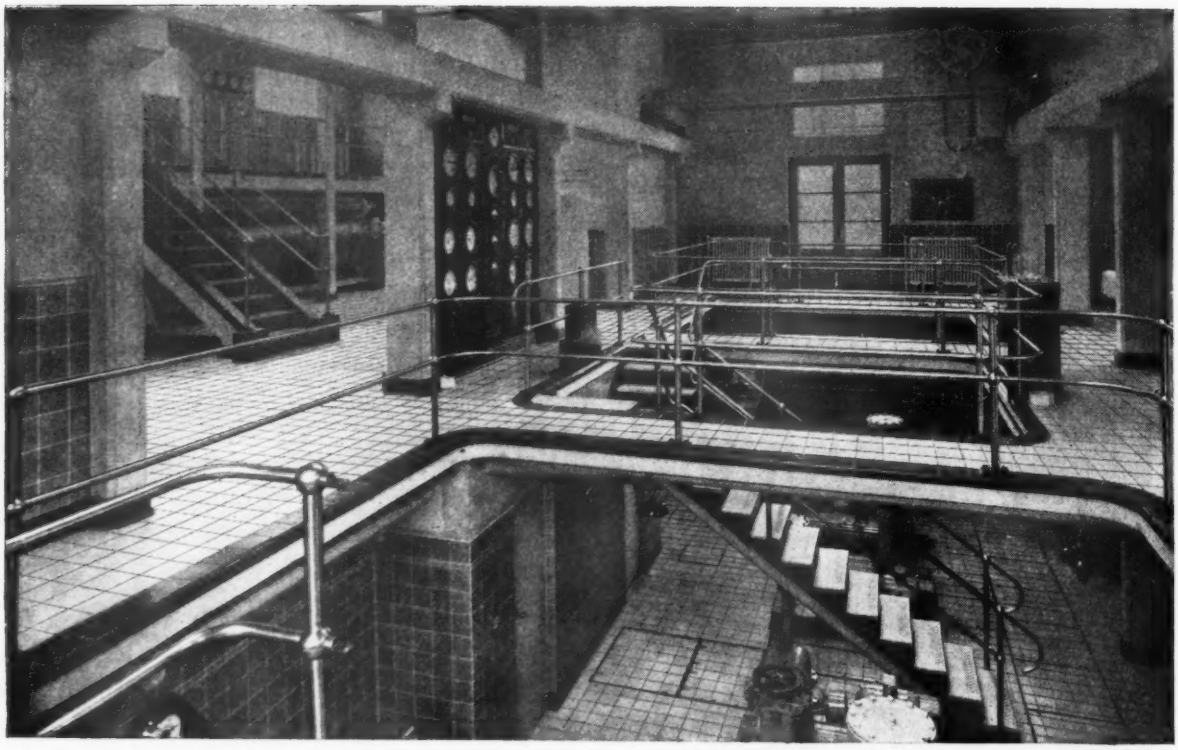

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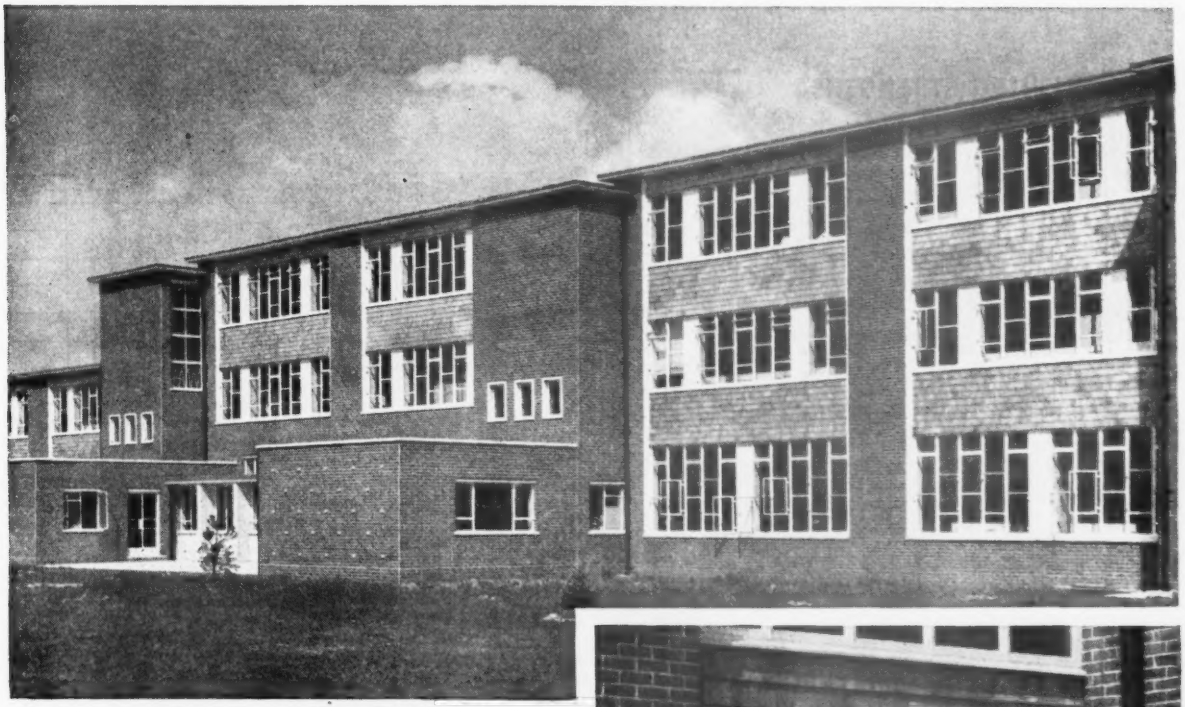

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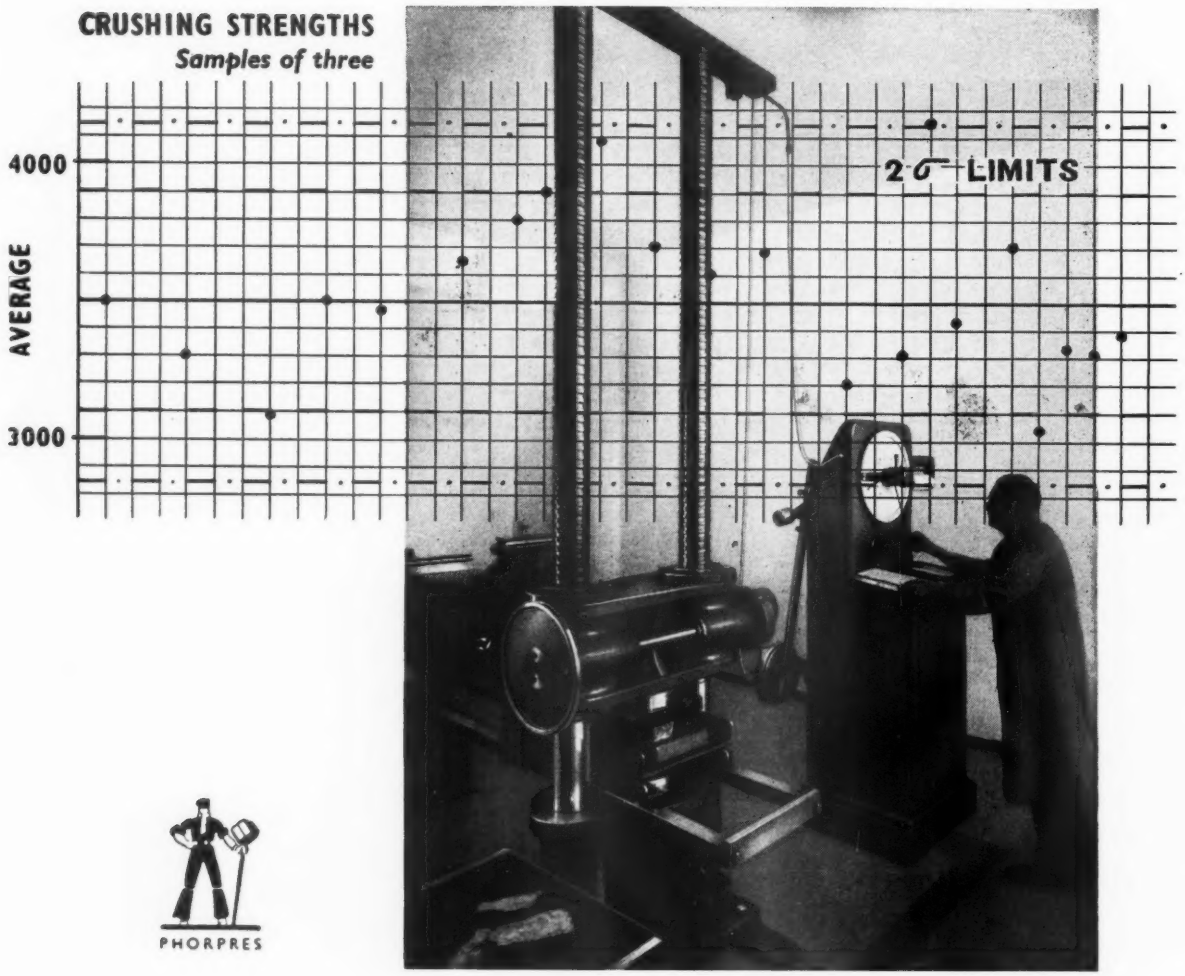

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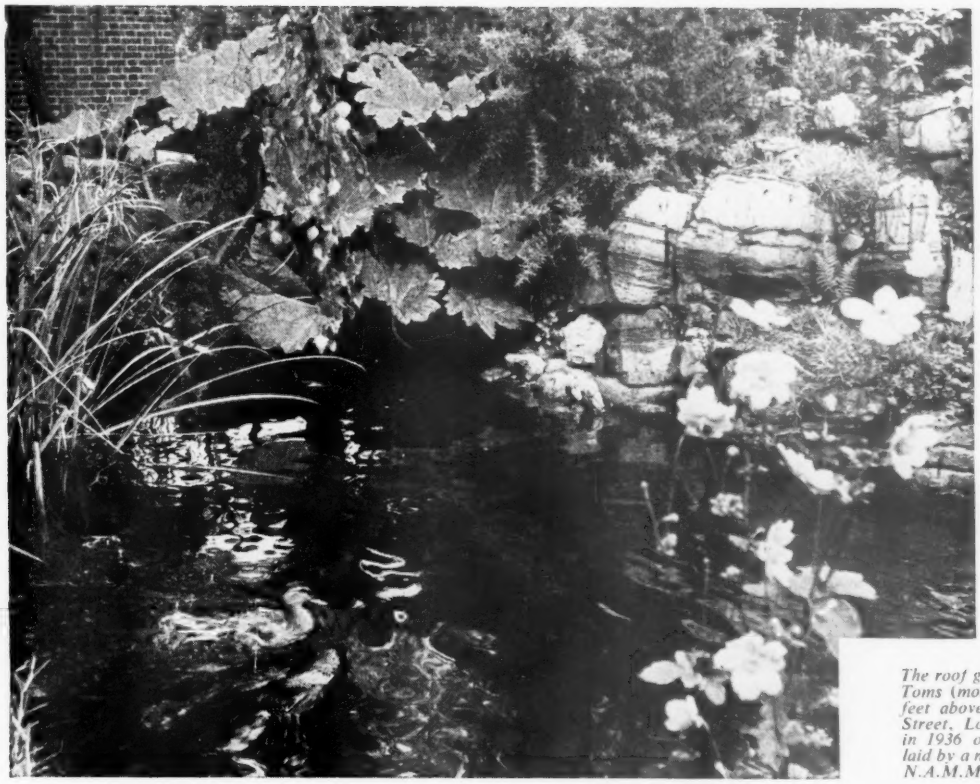

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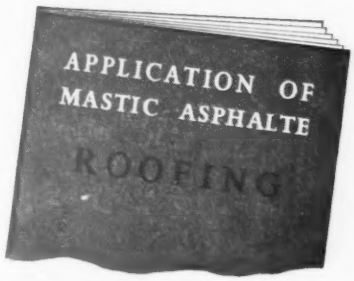

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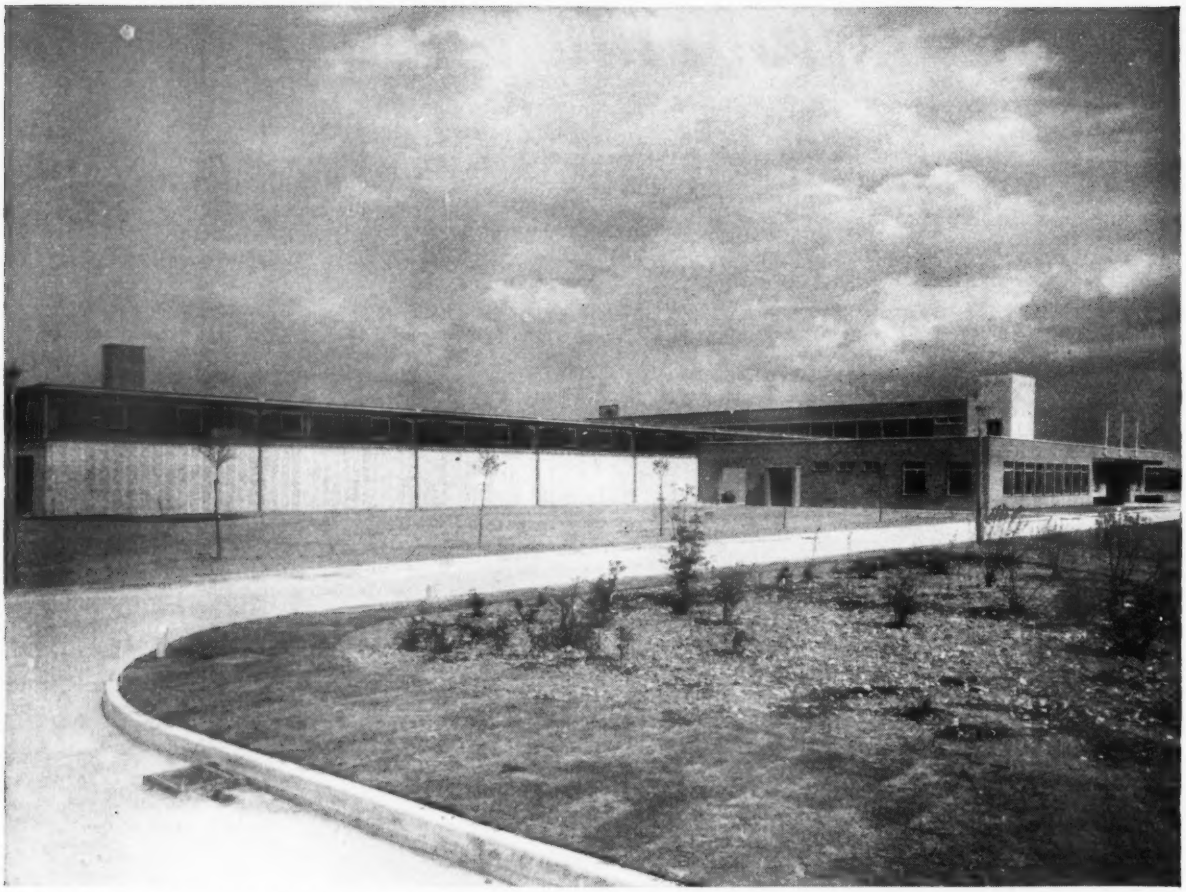

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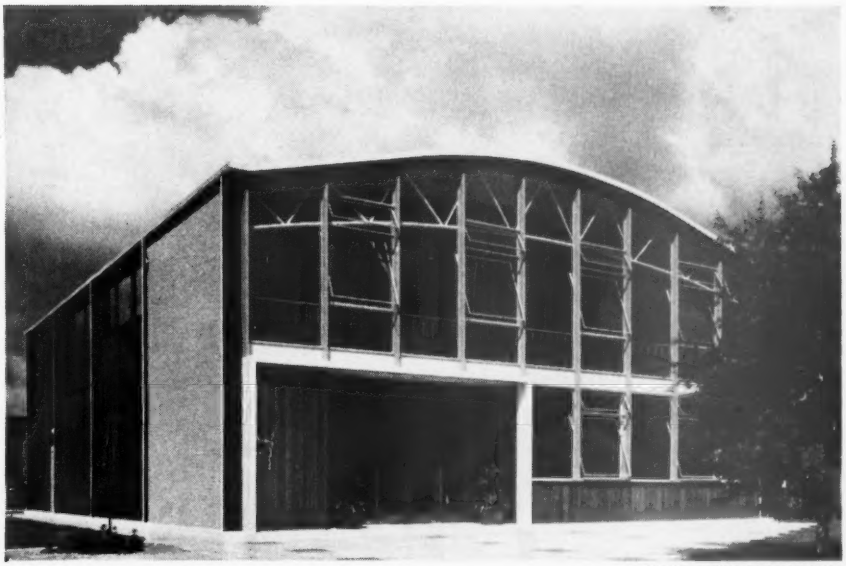

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NOVEMBER 1956 THIRD SERIES VOL 64 NUMBER 1 TWO SHILLINGS AND SIXPENCE

EDITORIAL

Memorial to John Nash

On the muggy, drizzling afternoon of 18 October, the unveiling ceremony of the portrait bust of John Nash was performed by the Rt. Hon. Patrick Buchan-Hepburn, Minister of Works, in the presence of a small invited audience seated on the steps of All Souls, Langham Place.

His Worship the Mayor of St. Marylebone gave the history of events leading up to the memorial and described the work of the committee on which the Royal Institute was represented by Mr. John Summerson, C.B.E. [*A*].

The Minister paid an eloquent tribute to Nash before unshrouding the bust, and the vote of thanks was proposed by Mr. Kenneth M. B. Cross, President R.I.B.A., whose words came very clearly and well over the microphone. The rector of All Souls, the Rev. J. R. W. Stott, then dedicated the memorial, after which guests went on to the R.I.B.A. for tea.

Excerpts from the speeches of the Minister and the President and from a broadcast on the same evening given by Mr. Gontran Goulden, T.D. [*A*], President of the Architectural Association, are given on p. 8.

The bust, by Mr. Cecil Thomas, O.B.E., F.R.B.S., is nine feet high including its base, and was reproduced from the plaster copy in the R.I.B.A. of the marble bust by William Behnes to one and a half times size. Mr. H. S. Goodhart-Rendel, C.B.E., Past President, architect to the parochial church council, was responsible for the architectural work. The memorial is sited in the portico of All Souls, Langham Place, and looks south. This position was chosen by the committee since it is on the axis of Nash's London development and also because All Souls is the only surviving London church designed by him, and its spire earned him at the time the notorious lampoon showing him in his tight Regency trousers spitted upon it.

The credit for initiating, albeit so tardily, a worthy memorial to Nash goes to the St. Marylebone Society, who were supported financially and otherwise by the London County Council. Represented on the Memorial Committee were: The London Society, the Georgian Group, the R.I.B.A., Sir John Soane's Museum, the Royal Society of Arts, the St. Marylebone Society, the L.C.C., the City of Westminster, the Metropolitan Borough of St. Pancras, the Office of Commissioners of Crown Lands and All Souls Church, Langham Place. The Memorial bears the inscription JOHN NASH 1752–1835, ARCHITECT.

Presentation to Mr. Sydney Tatchell, C.B.E. [*F*]

The Joint Tribunal on the Standard Form of Contract was set up immediately following the publication of the 1931 R.I.B.A. Standard Form of Contract in order to review the working of the document, advise on necessary amendments from time to time and give guidance generally. At that time there were four members from the R.I.B.A. and four from the N.F.B.T.E. At the first meeting of the Tribunal in 1932 Mr. Sydney Tatchell was unanimously elected Chairman with Mr. C. D. Spragg and Mr. Norman H. Walls (N.F.B.T.E.) as Joint Secretaries. (Mr. Walls was subsequently succeeded by Mr. Howard A. Close in this office.)

In June 1956 Mr. Tatchell said he would like to retire from the Tribunal, and the Council of the Royal Institute reluctantly agreed to accept his resignation as one of the R.I.B.A. representatives, at the same time recording their grateful thanks for his sterling services over this long period. When Mr. Tatchell's resignation was reported to the Tribunal they unanimously elected Sir Percy Thomas (Past-President) as Chairman in his place. Sir Percy himself has been a member of the Tribunal for twenty years except for the two periods during which he held the office of President.

The Tribunal felt very strongly that Mr. Tatchell's devoted services as Chairman should be marked in some tangible form, and at a luncheon in his honour held at the Royal Institute on 12 October he was presented with a silver inkstand suitably inscribed.

Sir Percy Thomas, who made the presentation, referred to Mr. Tatchell's genial chairmanship which had contributed so much to the happy and friendly atmosphere so characteristic of the proceedings of the Tribunal. No formal vote had been called for during the whole of the Tribunal's existence.

Mr. Tatchell in thanking Sir Percy and the Tribunal spoke of those original members of the Tribunal who had given yeoman service and of the subsequent expansion of the Tribunal by the inclusion of representatives of the R.I.C.S., and more recently by the addition of members representing the various associations of local authorities. He spoke of the magnitude of the task which the Tribunal had undertaken in making a complete and thorough review of the document. In conclusion Mr. Tatchell expressed his gratitude to the members of the Tribunal and in particular to the Joint Secretaries for their co-operation and support during his long period as Chairman.

Council Matters

At the Council Meeting on 9 October, in addition to the business previously summarised in the October JOURNAL Editorial notes and set out on p. 44 of this JOURNAL, it was reported that the Privy Council had given approval to the amendments to Bye-laws 28, 33, 34 and 35 which will bring into effect from 1 January 1957 the new constitution of the Council approved at Special General Meetings held on 20 December 1955 and 10 January 1956. Details were given in the JOURNALS of January and February respectively. No change is made in the representation of Allied Societies, ex officio appointments or representation of certain other bodies.

During 1957, 6 Fellow, 3 Associate and one Licentiate Members of Council will retire and will be replaced by 3 Fellow, 3 Associate, one Licentiate and 3 Ordinary Members. This procedure will be repeated in 1958 and 1959, thus covering transition to the new constitution.

It was also reported that the Privy Council had given approval to a revision of Bye-law 43 approved at General Meetings held on 17 April and 1 May 1956. The revised Bye-law permits the Royal Institute to invest up to one-third of its funds in equities under appropriate safeguards as to the type of security to be held. (JOURNAL, May 1956.)

The Council approved a joint recommendation by the Town and Country Planning and Housing Committee and the Public Relations Committee that a symposium should be held on 'Designing for Children in High Density Housing' early in 1957.

The Council considered a report from the Practice Committee on the proper fees in connection with supervision and additional work involved in erecting houses from standard designs or adopting those designs for particular purposes. On the recommendation of the Practice Committee it was agreed that for such standard designs the following statement should cover the question of fees:

'It is not possible to prescribe a fixed percentage charge for professional services exceeding normal supervision for which one-third of the full percentage fee under the R.I.B.A. Scale of Professional Charges is applicable. The appropriate fees for such additional services must be a matter for prior agreement on the basis of the R.I.B.A. Scale in the light of the requirements in each case.'

A decision which should strengthen the ties between the Royal Institute and Overseas Allied Societies was the approval given at the meeting on 6 November to a tour by the President and Secretary in April and May 1957. Arrangements are being made for them to visit the Institute of Architects of Malaya, the Royal Australian Institute of Architects and State Chapters, the New Zealand Institute of Architects, the Royal Architectural Institute of Canada and the American Institute of Architects.

The Council gave formal approval to the awards of R.I.B.A. Architecture Bronze Medals made by the following juries: Birmingham and Five Counties Architectural Association—Research Laboratory for Messrs. Guest, Keen and Nettlefold Ltd., Lanesfield, Wolverhampton, designed by Messrs. Lavender, Twentyman and Percy (A. R. Twentyman [*F*], C. G. Percy [*A*]). The Norfolk and Norwich Association of Architects—The Norfolk County Council Secondary Modern School, Loddon, designed by A. F. Scott and Sons (E. W. B. Scott [*F*], T. E. Scott, M.C. [*F*], P. J. Arnold [*A*], R. A. Brewster [*A*] and A. L. Cobb).

Relevant to the President's tour mentioned above, Overseas Alliances have been increased now that approval has been given to the application of the Institute of Northern Rhodesian Architects for admission as an Allied Society under the provisions of Bye-law 69. The province of the Institute will be Northern Rhodesia with Nyasaland and the Institute will become an Allied Society from 1 January 1957.

Returning to home affairs, general approval was given to the plans for the completion of the top storeys of the R.I.B.A. building. The addition of two further storeys over Nos. 66 and 68 Portland Place will be carried out as a continuation of the building operation on No. 68. These storeys will make provision for further committee rooms, additional urgently needed office accommodation, some exhibition space and a new canteen dining room and kitchen. It is hoped to illustrate the plans in the December JOURNAL.

The Council has now given approval to arrangements by which architects' sign boards of the approved design can be made locally. There will in future be three alternative methods of supply: (*a*) The complete board to be supplied from the Lettering Centre. (*b*) The supply through the R.I.B.A. of a printed full-size drawing of the board and an alphabet in the approved style of lettering so that members may produce their own boards locally. (*c*) The supply of the boards completed but without the name and address of the architect, and a drawing of the alphabet from which members can arrange for the board to be completed. Further details as to cost, etc., will be published as soon as available.

Practitioners continue to receive through the post trade literature which although informative does not conform to B.S.I. size or is otherwise below standard in format. Approval was given to a proposal by the Science Committee that the Building Centre should be approached with a view to collaborating in the organisation of a competition for trade and other technical publications. The objects of the competition are to recognise excellence in building product literature directed to the architect; to aid manufacturers in increasing usefulness of such literature and to encourage manufacturers to adopt standard sizes as laid down by B.S. 1311. The competition would be in three classes: (i) Literature consisting mainly of technical information produced by associations of manufacturers or independent bodies and designed to give information on design, methods of application, standards of workmanship, etc., of a class or group of products. (ii) Literature offering technical information on the product of a single manufacturer. (iii) Literature primarily of an advertising nature designed to bring a producer's name and product to the notice of the architect.

The award would consist of certificates of exceptional merit, certificates of merit and honourable mentions.

Whatever the title 'Festival of Women' conjures up in readers' minds, it will touch on prefabrication among other things. The Council gave approval to a proposal from the Public Relations Committee that the R.I.B.A. should assist with arrangements for the design and construction of an exhibit consisting of a prefabricated house to bring out the theme that in the housing industry increased productivity

could come only from prefabrication. This will be presented at the Festival of Women to be held at Wembley in May 1957 and the R.I.B.A. will also assist by preparing a booklet explaining the work of an architect and his role as the designer and co-ordinator of prefabricated materials and components.

The exhibition programme for the Spring includes two exhibitions which promise to be of great interest. The Council accepted an offer from the French Embassy to provide an exhibition of contemporary French architecture to be shown at the R.I.B.A. in February and March 1957, and the offer of the Finnish Embassy to provide an exhibition of Finnish architecture to be shown in April 1957 was also accepted.

Building a House

The Glamorgan County Planning Committee has published an illustrated booklet, *Building a House*, designed gently to persuade intending house-builders to secure a better standard of design.

The Chairman in a foreword advises anyone about to build to employ an architect, and the brochure by means of photos of U and Non-U houses with short captions makes its point.

While no one exhibition or pamphlet will convert what the booklet calls 'eccentric or pushful' clients to better manners, each contributes towards producing a social atmosphere in which better design is taken for granted. The booklet should assist the inevitability of this gradualness. It was prepared for the committee by Mr. John Powell, County Planning Officer, Glamorgan.

Cover Picture

This month's cover picture has been reproduced in black and white from a colour transparency taken by Mr. Rolf Hellberg [*F*], who has this to say about it:

'The new Concert Hall at the Tivoli Gardens at Copenhagen which was completed this year was the work of Hans Hansen and Frits Schlegel. The fan-shaped auditorium is extremely satisfactory acoustically and is much used by the Danish Broadcasting Corporation. It is essentially a multi-purpose hall, having a dual circulation with entrance from the gardens during the summer season and from the street during the winter.

'The illustration shows the garden elevation which is light and delicate with almost a Regency flavour. The building is all in white and gold with a loggia ceiling in red with the whole of the loggia treatment outlined with small tungsten lamps.'

Christmas Holiday Lectures

Under the title of 'The Adventure of Architecture', Mr. G. Grenfell Baines, A.M.T.P.I. [*A*], will give two informal lectures for boys and girls during the Christmas Holidays.

The lectures will be enlivened with coloured slides and musical recordings and time will be allowed for questions and discussions after each lecture.

They will be held in the Henry Jarvis Memorial Hall at 3.0 p.m. on 3 and 4 January. Tickets for either or both of the lectures are obtainable free on application to the Secretary. Envelopes should be marked 'Christmas Holiday Lectures' in the top left-hand corner. It should be noted that the lectures are intended only for boys and girls of 13 years of age and upwards, and owing to the limited space available it is requested that applications should not be made for more tickets than can be used.

The York Institute of Architectural Study

Last January the York Institute of Architectural Study held a conference on the subject of 'Architectural Office Management'. This was inspired by certain ideas put forward at the R.I.B.A. Conference 1955 held at Harrogate. The York Conference was an explanatory one and much valuable work was done. It passed certain unanimous resolutions mainly about the urgent need for research and post-graduate courses on the subject. As a result the York Institute of Architectural Study is holding a course from 4–8 January 1957 on the subject of 'Architectural Project Management'. The syllabus will include the following subjects:—

Architect's Brief—what information should it contain? How is it obtained? Programming the Work. Preliminary Designing. Production of Working Drawings. Cost Control. Storage of Drawings. Filing Correspondence. Technical Information. Co-ordination of Consultants and Specialists. Relations with the Quantity Surveyor. Tenders. Site Supervision. Architect's and Builder's Relations.

The lecturers will include: George W. E. Airey, T.D., F.I.O.B., J. M. Austin-Smith, M.C. [*A*], G. Grenfell Baines, A.M.T.P.I. [*A*], Eric L. Bird, M.B.E., M.C. [*A*], Technical Education Officer, The Building Centre, S. Jewsbury, B.Sc., A.M.Inst.C.E., A.M.I.H.V.E., Consulting Engineer, J. Nisbet, A.R.I.C.S., Principal Quantity Surveyor to the Ministry of Education, G. G. Pace, F.S.A. [*F*], Surveyor to the Diocese of Sheffield, Rex Procter, F.R.I.C.S., M.R.San.I. [*A*], Quantity Surveyor, Clive E. D. Wooster, A.M.T.P.I. [*A*], Architects' Department, Ministry of Education, a Management Consultant from Urwick, Orr & Partners Limited, Filing and Recording Consultants from Roneo Limited.

In addition to the lectures there will be ample time for discussion and a Forum has been arranged, the members of which will be an architect, quantity surveyor, consulting engineer and a builder.

The holding of this course, which has the full support of the Practice Committee of the R.I.B.A. and the Institute of Builders and is on the Ministry of Housing and Local Government's approved list, is intended for architects in both public and private offices of all sizes.

The course starts at 4 p.m. on Friday 4 January and ends at noon on Tuesday 8 January 1957. The course fee is four guineas and members will be responsible for their own hotel expenses. Prospectuses are now available from the Secretary, The York Institute of Architectural Study, Micklegate, York (York 55848), and as numbers will be limited early application is advisable, and in any case not later than Friday 21 December.

R.I.B.A. Diary

MONDAY 10 DECEMBER. 6 p.m. Library Group Meeting. Miss Ida Darlington, M.A., F.L.A., will speak on Peter Thompson, the pseudo Hollar.

TUESDAY 11 DECEMBER. 6 p.m. General Meeting. *The Motor Vehicle and Civic Design*—Professor H. Myles Wright, M.A. [*F*].

Inaugural Address of the President

Mr. Kenneth M. B. Cross, M.A.(Cantab.)

Given at the R.I.B.A. 6 November 1956

IT IS, I BELIEVE, customary for this Inaugural Address to be a kind of speech from the throne in which no questions of policy need necessarily be referred to but in which it is hoped that there may be some disclosure as to the kind of man you have chosen to be the new President. My endeavour, of course, while chatting amiably of this and that will be to ensure that no such disclosure takes place.

When I had the honour of being elected President of the Royal Institute of British Architects many of my friends offered me their congratulations, some said how surprised they were when they heard the news—though they hastily added that they did not mean quite that. There were others who offered condolences as to one suddenly bereft of reason and who was hurrying to an untimely end. But one well-wisher, having offered congratulations, put the terrible question: 'But when is your Inaugural Address? I must come and hear that.' I know he had the best intentions but no one who has not experienced the labour of composing an Inaugural Address can have the slightest conception what a depressing effect this exercise can have on the most buoyant personality. At first glance it all seems so easy; the canvas is vast, architecture, civilisation, humanity, progress are all impressive words and might be brought in to play their part in the composition of a picture of considerable dimensions. The story that the picture told would start with the cave dwellings of Dordogne in France 20,000 years before the Ice Age and would end with some cloud-capped pinnacle, one mile high, created in the imagination of Frank Lloyd Wright as a contribution to the solution of the housing problem on the Lake front at Chicago. But this review would, I fear, degenerate into an outline history of architecture which you would say at once you could get out of a book. I would, of course, protest that we were a learned society but you would say 'Yes, we know, but not as learned as all that.'

I wonder how many of my audience here to-night know how this Institute started about 122 years ago. In January 1834 a few architects met together at the Freemasons Tavern to form a society for the study of architecture and architectural topography. They could not agree on the objects to be aimed at nor the conditions of membership so a few of them decided to hold another meeting at another hotel and a committee was appointed to draw up a scheme—we still do that in times of difficulty. This led to the election of such men as Barry, Basevi, Decimus Burton, Gwilt and Hardwick as original members. By the end of 1834 the Institute of British Architects consisted of a Council and fifteen ordinary members and the first formal meeting of the Council took place at the Thatched House Tavern on 10 December. Early in 1835 a Council meeting was held at Evans Hotel, Covent Garden, and Earl de Grey was elected the first President. He remained in office until 1859 and was succeeded in 1860 by C. R. Cockerell. Earl de Grey was able to interest Royalty in the affairs of the Institute and in 1846 the gift of a Royal Gold Medal was announced.

From 1857 until 1859 R.I.B.A. meetings were held in rooms in the fine 18th century building, No. 16 Grosvenor Street, which still exists.

In 1862 regulations were issued for a system of voluntary examination which lasted for twenty years with varying success. The first compulsory examination was held in 1882 and soon became a permanent feature in our educational organisation.

After the first fifty years of our existence we were recognised as being a learned society which furthered the interests of architecture and stimulated the efforts of the younger men through prizes, studentships, medals and by putting a well stocked library at their disposal. In 1866 the word 'Royal' had been added to our title. We were not, however, as democratic as we are today; in those far-off days Associates had no vote. Today they have votes but few of them use them. The active members in those days were all London men and the provincial societies were regarded more as objects of benevolent interest than as contributors to the life of the parent body. From the beginning the Institute has been anxious to maintain the status of the profession and for many years it has been concerned with such matters as the conduct of competitions, the rules of professional practice and the form of building contract.

As the years went on we increased in influence and stature. We advised on the Royal tombs in Westminster Abbey at an early stage in our progress and we were consulted by the Government in 1846 as to the desirability of the equestrian statue of the Duke of Wellington on top of the archway into the Green Park. Our opinion was, incidentally, that 'the statue was unsatisfactory and its position there most objectionable'.

We fought to preserve the amenities of London under the threat of 'improvements', we were concerned with the City churches and with the Thames Embankment, and the Parliamentary Committee dealing with the new road which was to be built from Trafalgar Square to the Embankment had the designs of the buildings proposed on each side of the road submitted to us and the Council reported thereon in 1878.

Under the Charter of 1887 the Council became 36 in number, in 1909 the figure was 42 and in 1925—78. Under the increased pressure of business an Executive Committee was set up to act as a clearing house from which the more important matters were referred to the Council. This arrangement still works remarkably well and there are today more than 20 other committees in addition to the standing committees.

Reference should also be made to the Board of Architectural Education, established in 1904, which through four main committees and 53 examiners controls examinations at home and overseas, has charge of prizes and scholarships and supervises the work of the schools of architecture in these islands and overseas as well. The work of the Board is as important as any that we undertake.

During the earlier part of our tenancy of No. 9 Conduit Street the top floor was used by the Architectural Association. After a time the R.I.B.A. occupied the whole building, the Architectural Association went to Westminster and then to Bedford Square. Still pressed for space, we took over some accommodation at the back of 9 Conduit Street with access to Maddox Street and this enabled new exhibition galleries to be provided.

By 1929 our Conduit Street premises, particularly the library, were found to be quite inadequate and after a long search we discovered our present site and Grey Wornum won the competition and erected our excellent headquarters. Today we are again short of accommodation and we are re-building No. 68 and adding two floors to the present building.

In addition to our central organisation there are 26 allied societies in England, many of which have several branches or chapters. In Scotland there is the Royal Incorporation of Architects with six chapters and in Ireland there is the Royal Institute of Architects of Ireland in the Republic of Ireland and there is the Royal Society of Ulster Architects.

No doubt most of my audience here to-night are fully aware of the extent of our organisation in the British Isles with a membership, including Students, of about 20,000, but I would remind you that we are also the centre of a network of overseas

Allied Societies and their branches with whom we are in frequent touch particularly in regard to educational and constitutional matters.

In Africa we have the Institute of South African Architects with its President-in-Chief and its provincial institutes in the Cape, Natal, Orange Free State and Transvaal, the East Africa Institute with three chapters in Kenya, Uganda and Tanganyika and also the Institute of Southern Rhodesian Architects. We are shortly to admit to alliance a society covering Northern Rhodesia and Nyasaland.

In Australia the Royal Australian Institute of Architects comprises chapters in New South Wales, Queensland, Tasmania and Western Australia together with the South Australian Institute and the Royal Victorian Institute.

The Royal Architectural Institute of Canada with its headquarters at Ottawa has federated societies in Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland, Nova Scotia, Ontario, Quebec and Saskatchewan.

The New Zealand Institute of Architects is allied to us and to complete the story we have the Indian Institute of Architects, the Institute of Architects of Malaya and the Federation of Malaya Society of Architects.

No doubt the time will soon come when we shall be receiving applications for alliance from the recently formed societies in West Africa, Hong Kong and the British West Indies.

I have referred to our Allied Societies overseas in some detail because I think it should be appreciated what a large field our activities cover and what a great influence we can exercise in all that concerns architectural matters through the exchange of thought and ideas with our friends in various parts of the Commonwealth. I suggest that we call to mind Dr. Johnson's recommendation and keep our friendships in repair in every way possible and particularly through the exchange of visits. I believe that they will welcome us; I know that we will welcome them whenever they can come and see us. It is no longer sufficient for us to be a small learned society with our interests largely confined to London as we were in the time of Lord de Grey our first President. Neither is it sufficient for us to have our activities confined to the British Isles as was the case at the beginning of this century. By working for and getting the Registration Acts of 1931 and 1938 we have taken a different road, one that leads to growth, consolidation and recognition at home and to expansion, breadth of view and freshness of vision under the stimulus of contact with our allied members overseas.

It has been said that the position of the Royal Institute of British Architects is unique, that not only have we a series of architectural organisations allied to and federated with the R.I.B.A. at home but that you cannot go into any part of the Commonwealth, into any Dominion or Crown colony without finding an organisation of architects who are linked by practical as well as sentimental ties with the Royal Institute.

It is essential that we should devise machinery to ensure the fullest consultation with our Allied Societies wherever they may be situated in the Commonwealth. I hope it may be possible during my Presidency for me, in company with the Secretary, to visit some of them in response to the warm invitations which we have received. Plans towards this end are at present under consideration.

During the period immediately before the last war much of our work was influenced by the best Swedish and Dutch examples. Ten years ago, in November 1946, Sir Lancelot Keay read the first Inaugural Address which had been given for eight years, during which period very little architectural work had been possible. Sir Lancelot pointed out that, during the ten years before the war, more than one President had referred to machine-made architecture as being on the way. Today it would seem to have arrived. Architecture has always, in my opinion, comprised both science and art and I like to think that the best results have been achieved when the balance between science and art has been fairly evenly maintained. There was this harmony in the Parthenon, in the Pantheon, in the great gothic cathedrals, in St. George's Hall, Liverpool, in some of the architecture of iron and glass of the 19th century and also in the Dome of Discovery. If today it seems that science is in the ascendant I would suggest that building construction was not very progressive or imaginative in Victorian days and there is still some way to go.

Whatever you may say or think about the present time this is undoubtedly an age of great scientific speculation and discovery, but so also was the Restoration period. The Royal Society was founded in 1660 after a lecture on astronomy by Sir Christopher Wren. Dr. Bronowski has told us in this very room how Wren and Robert Hooke (also a very able architect), deeply disputing on scientific matters, sent Halley off to Cambridge to ask Newton a question about gravitation. Newton it appears had worked out the answer years previously but could not find his papers and began to write it out again and the result was *The Principia*.

I might remind you that Roubiliac's remarkable statue of Sir Isaac Newton is to be seen in the ante-chapel of Trinity College.

There are three phenomena in modern life which would seem to indicate that great changes are taking place and that we are approaching a new era in human affairs. They are the spread of automation, the discovery and use of atomic energy and the achievement of self-government by many people formerly of colonial status. The increase in automation and the use of atomic energy are bound to affect building and we can expect additional new materials, new methods of construction and a general speeding up of building processes. But science cannot do everything; science cannot supply the complete answer. Here is a small extract from Lord Crawford's address to the University of St. Andrews in 1953:

'There is, after all, so much that science cannot do. It cannot tell what song the Syrens sang nor what we are beyond the grave. It has brought us longer life without the happiness which makes it worth living, and without knowledge of its cause or meaning; it does not know why we are moved by music, nor why words in a certain order become poetry, nor why one bottle of wine is better than another. . . . It has accordingly nothing to say about things religious, aesthetic and philosophical.'

Science cannot supply the complete answer but, paradoxically, science offers indirectly the only hope of real architectural progress. If architects are to design happily and successfully they must feel that they have the support and appreciation of the public for whom they work. In short not only architects but the public should be cultivated and knowledgeable. In the stress and struggle to keep going it is increasingly difficult for younger men and women to earn their living, run their homes, get their children educated and continue to find sufficient spare time in which to develop their tastes in the arts in general and architecture in particular. Not only is more leisure needed but also money for the purchase of books, pictures or other works of art. We must look to science to improve methods of production to such an extent that shorter hours can be worked and, in addition, we should call for the development of domestic labour-saving devices at low cost to alleviate the soul-destroying tyranny of housework. It might be possible to develop a social economy on these lines in which people can live a full life and enjoy a real appreciation of the arts.

It is, I think, significant that at the meeting of the British Association in September a strong appeal was made for a new degree course at universities. It was proposed that a science and an arts subject should be combined in one course with a view to producing men and women for whom there were not two worlds but one. Mr. J. A. Ratcliffe, F.R.S., of the Cavendish Laboratory, Cambridge, argued that science was impersonal, it started from agreed facts and its conclusions were checked by experiments. But there were situations in which the element of judgment was important and powers of expression and persuasion were needed. Dr. Smail, the historian, complained of the ignorance of the generally educated man as to the meaning of the simplest scientific terms. Recently both scientists and historians have been recognising the value of each other's methods and if effective means can be found of reducing the barriers that have grown up since the days of Sir Christopher Wren and Sir Isaac Newton between science and art then surely we shall have taken a step in the right direction.

There may be some here to-night who are not entirely happy about the position of the architect and the various engineering specialists, whether structural, heating, lighting, acoustic, ventilating or others.

Owing to the growing complexity of modern building methods it is virtually impossible for the individual architect to be an expert in these engineering matters. But that does not mean that he should stand aside and leave the experts in charge. It is of the greatest importance that the architect should be in active control of all work included in the building contract and accordingly he must be familiar with the broad principles involved in each case so that he can explain his requirements to the engineer and be in a position to discuss the problem with him and to criticise the detailed solution which the engineer submits.

And then again, apropos science and art and the great tradition, the following little anecdote has some significance. Just after the last war I went to visit Arles again. It is a very small town in Provence which I find very fascinating and which is notable for the remains of Roman buildings to be found there and for 'les Arlésiennes' and St. Trophime. There are some places where one feels at home, especially if the peaches are ripe and the wine is passable, and so it is at Arles.

I arrived by train at about 6 o'clock in the morning; it was already very hot and there was no conveyance from the station to the hotel. The place had been bombed and amongst the losses Van Gogh's house had been destroyed. I found the square and the remains of the Roman archway and the hotel in the corner all just as they used to be. Inside the hotel, at the same desk, in a somewhat faded black dress, was the same Madame who used to preside before the war. After breakfast I thought I would walk to the river. I went through the poorer quarter and came out near the Basilica of Caracalla and there, sitting on the stone parapet watching the rather dirty water of the Rhone on its journey to the sea, sat a little old Frenchman in dirty blue overalls. 'Bon Dieu', said I in my rather rusty French, 'le pont a disparu'. There used to be an enormous railway bridge quite near which took the P.L.M. trains across the Rhone, not far from where the Romans had a bridge of boats, and now there was no sign of it. 'Ah, yes, Monsieur, le pont a disparu—the Americans tried to hit it and you saw all the "degats" near the arena-houses and flats destroyed. But the R.A.F. came down low "jusqu'au point" and, as you say, the bridge has gone.' And then he said this: 'You know that for me, Monsieur, civilisation ceased when the Romans left Provence.' 'But Monsieur!' said I. 'Yes', said he, 'consider the arts, consider painting, sculpture, music, architecture—what have we done since the Romans left Provence?' 'But Monsieur', said I hurriedly, trying to muster my scanty vocabulary, 'what about science; what about doctors, medicine, wireless, railway trains, steamers, the telegraph?' 'Ah, yes, Monsieur, there may be something in what you say but for me . . . etc. . . .' So there it was—such an astonishing declaration as I have never heard before or since—and he went on to describe the horrors of Verdun in the first war, 'moi, blessé dans la poitrine'.

Of course, we are agreed that my friend at Arles was wrong; the magnificent achievements of French art are quite conclusive on the matter; but if you just consider material comfort Sir Winston Churchill has stated that the standard reached by the upper classes during the Roman occupation of Britain was better than that achieved at any time up to 1900. (Vol. 1, p. 28, *History of the English Speaking Peoples*.) During this terrible 20th century our civilisation has been shaken to its foundations and yet, if the world can remain at peace, and the threat of war can be removed, we can be confident that, with the help of science, we can enjoy such a period of material and spiritual prosperity as we have never dreamt of. This happy state of affairs will, of course, be reflected in our architecture.

VOTE OF THANKS

Mr. W. E. A. Bull, President of the Royal Institution of Chartered Surveyors: It gives me the very greatest pleasure to move this vote of thanks to you, Sir, tonight. I have no idea what motives guide you in the selection of a speaker for this pleasant duty, but search the length and breadth of England as you will, you could not have found anyone more in tune with your President's feelings tonight than myself, for I am to present my own Address on Monday next!

It was a very happy thought of yours, Mr. President, to invite a member of the surveyors' profession to propose this vote of thanks, and it illustrates I think that confidence in the future for which architects are renowned. My own rather hard-bitten profession would never for one moment have considered entrusting the task of having the first crack at the Presidential Address to anyone who was not under the direct control of the profession's Practice Committee!

If I might presume to say so, I think you were very wise, Sir, to abandon the idea of summarising the history of architecture over the 30,000 years from the cave dwellers of the Dordogne to Frank Lloyd Wright, if only because as things are going, a successor of yours may very shortly be presenting a summary of the history of architecture in the year from Frank Lloyd Wright to the cave dwellers of Dordogne! It would be a great pity for a successor of yours to have to retrace your steps even in reverse!

I was indeed most interested to hear of your wide alliance with the Allied Societies in the Commonwealth and throughout the world. If I may, I should like to congratulate you on them. Not only are they of great importance to your own profession, but they are of importance to all the people of the United Kingdom. When our association of free peoples is under the great strain it is at the present time, the contacts which professions can make with their professional brethren in the Commonwealth and throughout the world have a significance far beyond their immediate purpose.

As I have said, I do regard it as a very great compliment to my profession that you should have asked me to propose this vote of thanks tonight, and I do so with the very greatest pleasure. You singularly failed, Sir, in the task which you set yourself of concealing the manner of man that you are; urbane and friendly, widely travelled and worldly wise, and comprehensively skilled in the practice of your art. I am quite sure that no one of your members here tonight who has heard your Address is otherwise than completely convinced that he has made the right choice of President this year.

It gives me, therefore, the greatest pleasure formally to propose this vote of thanks to the President for this Presidential Address.

Mr. Gontran Goulden, T.D. [*A*], President, Architectural Association: I am delighted to have this opportunity of paying my personal tribute to Mr. Kenneth Cross.

Very little is known about Mr. Cross. I personally know him as a very civilised person, as the proposer of this vote of thanks has already suggested. Did he not mention wine twice in his Address? Did he not speak French? I know him also as a robust public speaker, as anybody who heard him at the unveiling of the Nash Memorial will confirm. He was fairly audible without loudspeakers at Oxford Circus! As Chairman, did he not break all records at his first Council meeting by getting through the agenda in fifty minutes, with the result—I hope I am not betraying any Council secrets—that one member at today's meeting of Council asked for some time to find the place in his papers!

I should like to take out one point from the President's Address and to underline it particularly. I should like to say how very strongly I agree with him about the importance of the architect being the head of a building team. He did not actually call it that, for that is a vogue word, and I noticed that his Address was singularly free from vogue words! He implied that the architect must lead all the people who were on the job, and that he must know enough about their jobs to supervise and to know that the work is being properly done. I think it goes beyond that, because I believe that technical training is not enough. If all his technical training is to be used to its fullest, the architect must be a leader, and the training of leaders is as important as the training of technicians in the architectural profession.

I said that little was known about Mr. Cross. *Who's Who* states that his hobby is gardening. I know him as a person of great charm and great sagacity. Recently, architect and honorary architect members of the Savile Club entertained him to what proved to be a very good dinner. Mr. Cross set the seal on the evening by presenting each of his hosts with a book of poetry. I think I need say no more.

I have very much pleasure in seconding the vote of thanks to Mr. Kenneth Cross for his instructive and admirable Address.

The President: Thank you, Mr. Bull and Mr. Goulden, very much indeed, and thank

you, ladies and gentlemen, for the way in which you have accepted this proposition.

UNVEILING OF PAST-PRESIDENT'S PORTRAIT

We have other matters to attend to now, and I think that the next one on the programme is the unveiling of the portrait of the Past-President, Mr. Aslin.

It is an extraordinarily pleasant and interesting duty. Our kindly, forthright Past-President is, I am sure, well known to you all not only as one who imperturbably guided our business for two years, but also as the architect to the Hertfordshire County Council where he has been responsible for between 150 and 200 new schools since 1945.

No mention of the activities of our Past-President would be complete without reference to the very popular Mrs. Aslin who graced so many of our social functions with her charming presence.

I understand there were many sittings, but as the parties are on speaking terms still I assume that all is well! I am sure we are all very grateful to Mr. Allan Gwynne-Jones for having painted the portrait to add distinction to the very distinguished portraits which we already have in our Presidential collection.

I should now like to call upon Mr. Aslin to say a few words.

Mr. C. H. Aslin, Past-President R.I.B.A.: This portrait painting business is something quite different from what I expected. I thought that one could sit still easily. I did not think that I was a fidgety type, but I found that sitting still for longer than five minutes was a great problem.

May I say how very much I have enjoyed having my portrait painted, because it has been the making of what I hope is a friendship which will remain as long as the portrait. I am extremely grateful to Mr. Gwynne-Jones.

Mr. Allan Gwynne-Jones, D.S.O., A.R.A.: I am afraid that anything which I can say is extremely unoriginal. Mr. Aslin is obviously such a very nice man, for having one's portrait painted is a very grim business. Nice people remain nice and less nice people become appreciably less nice!

There is nothing more for me to say except to thank him for the kind things he said, and to say how much I enjoyed painting his picture.

PRESENTATION OF THE LONDON ARCHITECTURE BRONZE MEDAL 1955

The President: Now we have the presentation of the London Bronze Medal for the best building of 1955. Some of us may have had occasion to visit these buildings as passengers, and like myself have been privileged to enjoy the various facilities provided by what is called the 'Passenger Handling Building'.

In any event, I am sure that we are very proud of our airport buildings and of the architect, Mr. Frederick Gibberd. If he will be good enough to come forward I shall have the greatest pleasure in presenting the Bronze Medal for the best building in London for the year 1955, and may I say that the decision of the jury in the matter was unanimous.

Mr. Frederick Gibberd, C.B.E., M.T.P.I. [*F*]: On this occasion it is customary for the architect to pay tribute to all those who have helped to produce the building, and this rather bewilders me because so many were involved. I think that I should begin with Sir Alfred Le Maitre. He has the mysterious designation C.G.S. which means, as far as I am concerned, that he ironed out all the impossible snags with remarkable speed and a picturesque vocabulary! Amongst the Ministry's many backroom boys I should like to mention Mark Colbeck and John Ivimy, because they had the task of feeding us with information, and were sympathetic to my remark 'It will look better this way!' Mr. John Moncur, Director of Works for Civil Aviation, was responsible for construction, and we had a happy time working with him and his staff. There were three very distinguished consulting engineers; Sir William Halcrow and Partners, G. H. Buckle & Partners, and Ewbank & Partners, Ltd. E. C. Harris & Partners were the Quantity Surveyors. Messrs. Taylor Woodrow Ltd. built speedily, they built without argument, and they built well. What more can an architect say? That we are now involved together in an even larger scheme is proof of our regard for each other.

So many experts worked on this building that there might have been a danger of us all forgetting what it was all about; but in the background we always had Sir John D'Albiac, the aerodrome Commandant, to remind us that it had one sole function and that was to enable people to travel comfortably and with pleasure.

Lastly I should like to thank the architects who worked on the scheme with me, and in particular my partner, Robert Double, and my Associate, George Dunton. We all enjoyed very much producing this building, and we only hope that when we finish the next building at London Airport the Selection Committee will be as enlightened as this one has been!

The President: I now have great pleasure in presenting the replica of the Medal to Mr. J. D. Profumo, O.B.E., M.P., Parliamentary Secretary, Ministry of Transport and Civil Aviation, as representing the building owners.

Mr. J. D. Profumo, O.B.E., M.P.: It had, as I think you know, been the intention of the Minister of Transport and Civil Aviation himself to be present this evening and to accept this replica of the Bronze Medal. Unfortunately at the last minute he was called by the Prime Minister on a matter which has nothing whatever to do with London Airport.

You did mention that Parliament consulted your Institute as long ago as 1846, and since then I think that various Governments and members of Governments have been consulting members of your organisation. Indeed, the subject of my few words is the result of some recent consultations which we have had with one of your very successful members, and I want to say how very satisfied we are in the Ministry with the results.

I think that when one asks an architect to take on the job of designing a building there are two things one hopes to achieve. The first is that the results will be within the estimate and the second is that the building will fulfil the functions for which you have asked for a design. You may know that in 1952 the estimate for the S.E. Building as it was called was over £2 million. Although all the bills have not yet been paid, I think there is reason to believe that the final cost may be something like £1,800,000, which is about 8 per cent less than the estimate. I think that from the taxpayers' point of view it is a most remarkable achievement.

There are other reasons why you have to have expensive buildings. We are, of course, designing something now as a terminal in a modern age when the public want more for their money than people did in the days when the first railway stations were designed. Also we are going to have something like five million passengers a year through London Airport, and even today air travel is subject to delay due to weather and other reasons, so you have to have something which combines the functions of a railway station and a first-class West End hotel. Mr. Gibberd has managed to achieve this. He was responsible not only for the design of the building, but also for all the interior decorations, furniture, and so forth, in all the public parts of the building, including the bar.

Moreover, something like 90 per cent of the passengers who are going through London Airport are foreign visitors, and in many cases London Airport is the first view they get of Great Britain. I believe Mr. Gibberd can feel very proud that he has produced something worthy of this great national entrance to our country.

I am very proud to have been able to receive on behalf of the Minister this replica of the Bronze Medal. This will be displayed at London Airport where we can thus constantly commemorate the extremely able achievement of Mr. Gibberd, the very admirable decision of the Royal Institute of British Architects and the wisdom and forethought of the Ministry of Transport and Civil Aviation.

Mr. A. J. Hill, Managing Director, Taylor Woodrow Construction Ltd.: I am delighted to be here this evening on this very happy occasion, and I should particularly like to add my congratulations to Mr. Gibberd on his success.

The President then presented Diplomas of Distinction in Town Planning to Mr. Johnson Blackett [*F*], *Professor J. Leslie Martin, M.A., Ph.D.* (*Vice-President*), *Mr. Peter F. Shepheard, A.M.T.P.I., F.I.L.A.* [*A*], *and Mr. L. Hugh Wilson, O.B.E., A.M.T.P.I.* [*A*].

John Nash 1752-1835, Architect

THE MEMORIAL to John Nash was unveiled on 18 October by the Rt. Hon. Patrick Buchan-Hepburn, Minister of Works. The speeches of the Minister and of Mr. Kenneth M. B. Cross, President R.I.B.A., and excerpts from a broadcast given on the same day by the President of the Architectural Association, Mr. Gontran Goulden, T.D. [*A*], are given below.

The Minister of Works. I consider it a great privilege to be asked to unveil this memorial to John Nash, who, after all the critics have had their say, stands out in his own sphere as a man of genius.

I am also glad to have the opportunity to pay my tribute to all those, in many different spheres, who have been concerned to see that at long last a worthy memorial should be raised to a man to whom London owes so much.

Although John Nash was the architect of many country houses which demonstrate his taste and ingenuity, it was in his bold and imaginative plans for central and northern London that his genius as architect and town planner found full expression.

The history of the development of our vast sprawling capital contains, alas! many a tale of lost opportunity.

However, John Nash was lucky to get his chance. I quote Mr. Summerson's words in his book on Georgian London: 'Once and once only has a great plan for London affecting the development of the capital as a whole been projected and carried through to completion.'

St. James's Park in the south, with the beautiful façades of Carlton House Terrace; the plan of Trafalgar Square; the great route of Regent Street thrusting its way northwards to Regent's Park with its glittering terraces—these evidences of his achievement are well known to us all.

When we think of Nash we should also not forget his king. Whatever his faults, King George IV, as regent and king, was a gifted amateur of independent mind and taste. It is not only, for instance, in their work at the beautiful Pavilion at Brighton that king and subject should be remembered together. It is in fact very doubtful whether Nash's great plan for London would ever have come to pass at all but for the staunch friendship and support of his royal patron.

Time and the hand of man, in various ways, have dealt hardly with the work of John Nash. Much of it has gone. It would be idle to go into all that now. Perhaps we all share some of the blame. Let us rather count our blessings. The great plan exists. Regent Street is still the 'spine' of an area of London which otherwise would almost certainly have developed piecemeal. And much else remains of which I have spoken: and not least two of the most beautiful of London's parks, now grown to a maturity which I think it would have delighted John Nash to see.

Indeed, to comfort ourselves for what we have lost, perhaps the way to look at it is this: that if his plan and all that remains of his buildings were to be swept away overnight we should realise with a profound shock how much of London's beauty and grandeur had been due to Nash.

Therefore it is fitting that there should be a memorial, however modest, to a man to whom we owe so much. All honour to those who have seen to it. It is also fitting that it should be placed here under the portico of All Souls, the only church left to us which he designed—standing as it does in the midst of his grand design.

The President, R.I.B.A. Mr. Mayor, Mr. Minister, Ladies and Gentlemen: on behalf of the Royal Institute of British Architects I thank you, Mr. Minister, for your kindness in unveiling this memorial to John Nash whom we are proud to honour.

He was a man of exceptional vigour and great achievement, an architect of vivid imagination and broad outlook, with a genius for the grouping of buildings, who could blend the formal with the picturesque in a masterly way. He was a planner of the first order and if, in some instances, the detail of his buildings was not always above criticism this was doubtless due to the pressure under which he worked in his later years.

He united Regent's Park, which was to be laid out in the 'picturesque' manner and included housing for the wealthy, with St. James's Park by means of a street, 'The Royal Mile', which was unrivalled in Europe. He was a financier and businessman through whose enterprise and drive this scheme was kept alive in spite of serious difficulties. He was a successful country house architect and he was architect for the remodelling of the Pavilion at Brighton for the Regent whose friendship he continued to enjoy when his client had become King George IV. During the last years of the reign Nash was building Buckingham Palace.

John Nash was something of a courtier, an artist, a man of affairs, a connoisseur, and he has been described as 'The Prince of Architects'.

Mr. Gontran Goulden, T.D. [*A*]. The setting of the memorial in the porch of Nash's church, All Souls, Langham Place, is most appropriate for it looks down Regent Street —the 'New Street' of Nash's great plan for improving London.

The disappearance of the buildings which Nash designed for Regent Street is still regretted by those who knew them. Nash himself had a house there with a gallery 70 ft. long. He lived in great style. He had a bogus castle at East Cowes in the Isle of Wight where he entertained also in great style. His parties were famous. How was it all done? John Nash, born in 1752, was of comparatively humble origin, worked in a famous architect's office as a boy, set up as a builder in London; failed and moved to Wales, where he soon built up a flourishing practice as an architect. His work then included remodelling a number of prisons. He returned to London and soon became well known as a country house architect and obtained an appointment in the Department of Woods and Forests. He was 46 when he married a very pretty wife and suddenly and inexplicably he seems to have passed from being reasonably prosperous to being rich. There is little more than rumour to link Mrs. Nash's name with that of the Prince Regent, but there is no doubt whatever that 'Prinny' was one of the keys to Nash's success as a town planner. John Nash became the Regent's architect, in due course he was architect to the King and 'The Prince of Architects'.

The 'New Street' was planned as a royal processional way from Carlton House, then the principal royal residence in London, to the pleasure grounds of Marylebone. Alternatively it was to be a dignified street through which Members of Parliament could drive to the House from their elegant houses in the villas or terraces of the Park.

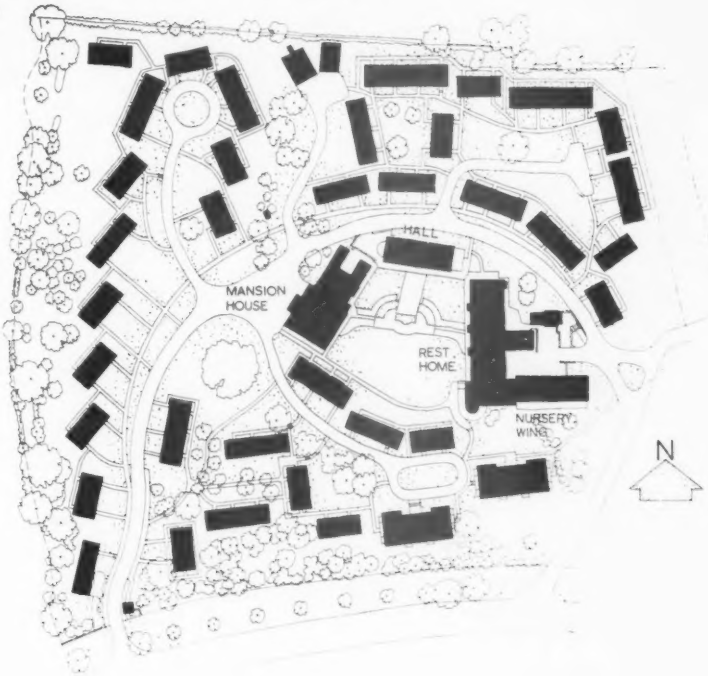
Royal patronage, however useful as a personal protection, could not by itself get this vast scheme carried out, as it was, in the teeth of furious opposition, and it is here that the true character of the great man was revealed.

Nash was a super-optimist, a man of the world and a tremendous thruster. No setback, however serious, seems to have deterred him—just imagine the complication of driving a wide street through one of the most densely populated areas of London! He was a wizard at raising money and when normal sources failed he raised it from the very builders he was employing or provided it himself. He was the speculative builder *par excellence*, and yet there is ample evidence to show that he did not do it entirely for personal gain but largely for the fun of it. It is true that he is recorded as saying, 'I am no more opposed to professional enrolment than the next man', and it is rumoured that at the time of George IV's accession he owed nearly a million pounds.

Old People's Home, Leylands Estate, Derby

For the Linen and Woollen Drapers' Institution and Cottage Homes

Architects: T. P. Bennett and Son [*FF/AA*]



THE LEYLANDS ESTATE on the outskirts of Derby has been developed as an Old People's Home by the Linen and Woollen Drapers' Institution and Cottage Homes. The Institution provides homes and assistance for old people in the drapery trade, and it decided that its War Memorial should be in the form of a new Home at Derby to supplement that already existing in Mill Hill. It was completed in September 1955 and was awarded the R.I.B.A. Architecture Bronze Medal in the area of the Nottingham, Derby and Lincoln Society of Architects for the three-year period ending 31 December 1955.

The development is carried out on the site of a late Regency house and its grounds, which contain numerous fine trees, and great care has been taken to preserve the natural amenities by the retention of the best trees and the grouping of the buildings.

The old house had been converted into flats in a previous contract. The cottages are of traditional construction with an open fireplace in the living room and with hot water supplied individually to each cottage by means of a gas circulator. Background heating from a central boiler-house is provided in the cottages and full central heating in the flats, rest home, nursing cottage and assembly hall.

Cottages of several types are provided in pairs and terraces with living room, bedroom, kitchen and bathroom which can accommodate a married couple or related couples. Strangers do not share accommodation. Two blocks containing 12 flats each, with bed-sitting room and kitchenette, provide accommodation for those who do not wish to have a cottage or are unable to maintain it.

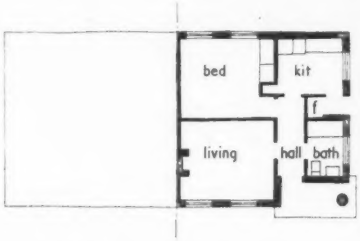
The rest home attached to the nursing cottage provides 16 bed-sitting rooms with communal bathing and dining facilities for those who require part-time nursing. The nursing cottage deals with residents who are sick or bed-ridden patients requiring constant attention.

The range of accommodation caters for all stages of old age. A hall is provided for social activities, and the residents have the use of some of the land attached to their cottages for gardening.

Considerable care was exercised in the choosing of materials with the object of providing a pleasant mellow appearance and avoiding maintenance costs to the Charity. For this reason, windows were kept relatively small while ensuring an adequate degree of lighting to the cottages. Timber sashes were used of relatively heavy section.

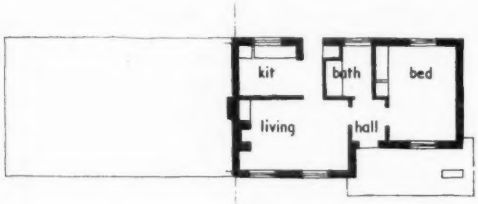
Detail of entrance to the Estate showing porter's lodge. This is the only two-storey building on the site apart from the flatlets, and is designed to give scale to the long sweep of frontage to the main road. The shelter on the right completes the composition. The site is unenclosed, except for a surrounding dwarf wall. Further illustrations are given on the following four pages

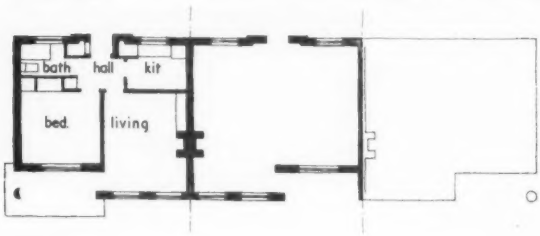
General view of entrance from the main road, showing existing trees retained. The road is made to bend fairly sharply before joining the main road, in order to enforce vehicles to reduce speed



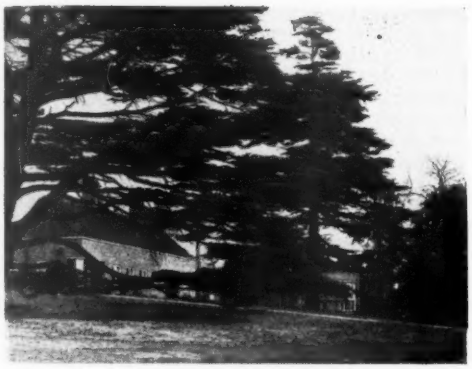
Detail view of the shelter in similar facing bricks and tiles to the cottages with artificial stone dressings. Interior vaulted ceiling is rendered. Copper finial

View of first section of cottages

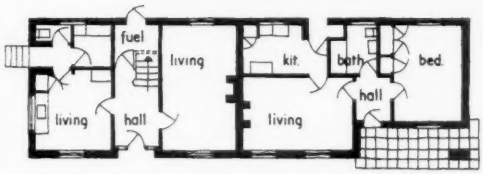


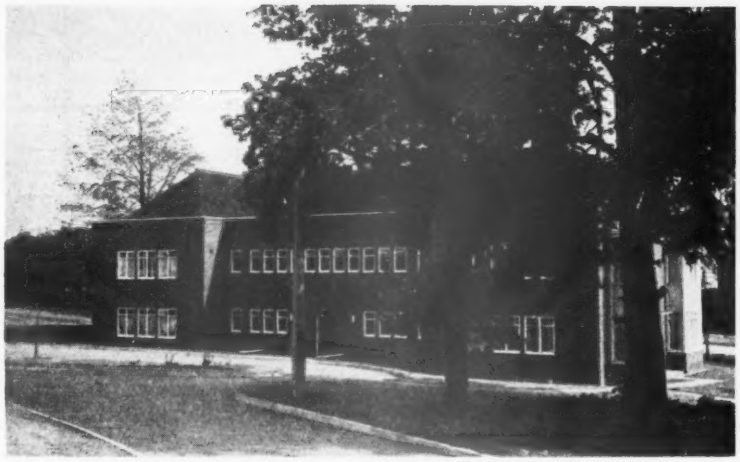


Many fine trees are retained although the overall layout is not crowded

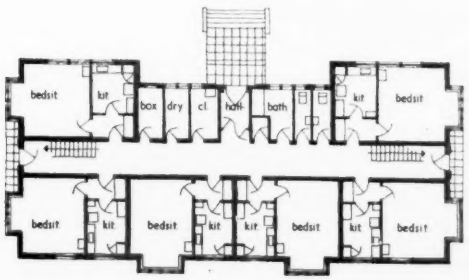


Cottages are placed in relation to rising contours and to retain sense of open space between





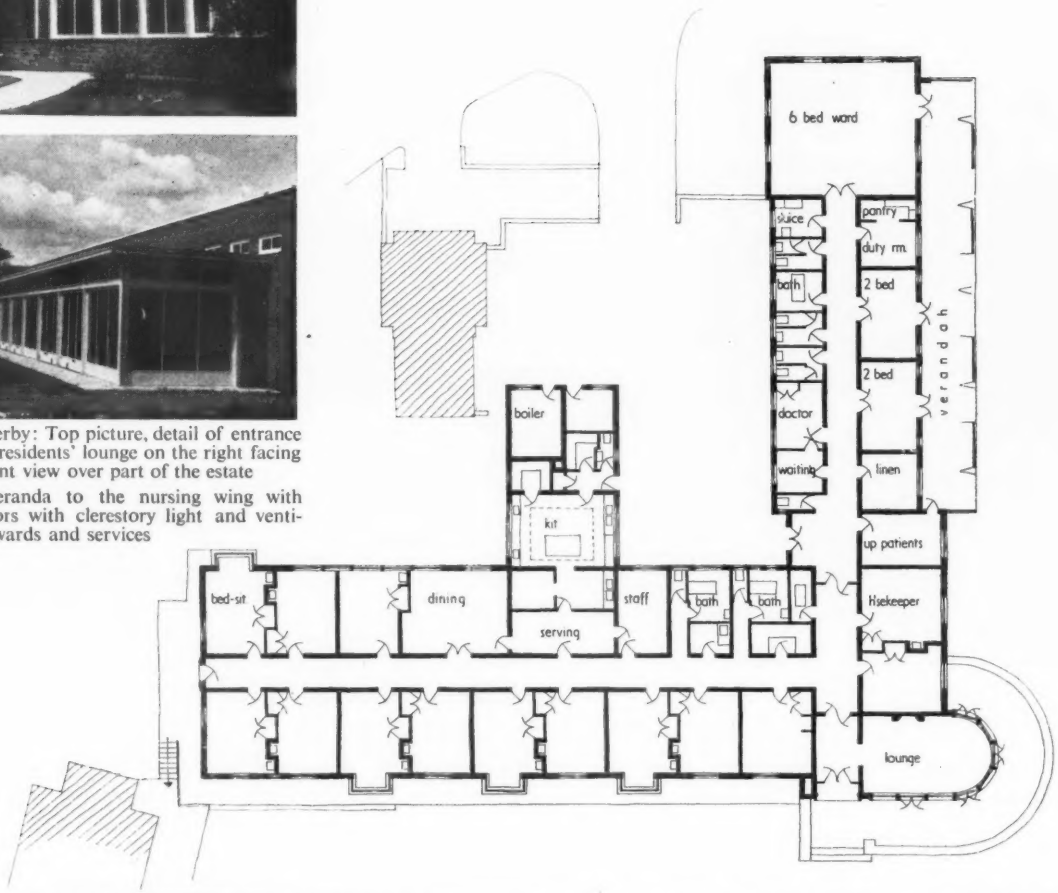
Above and on facing page, cottage type plans

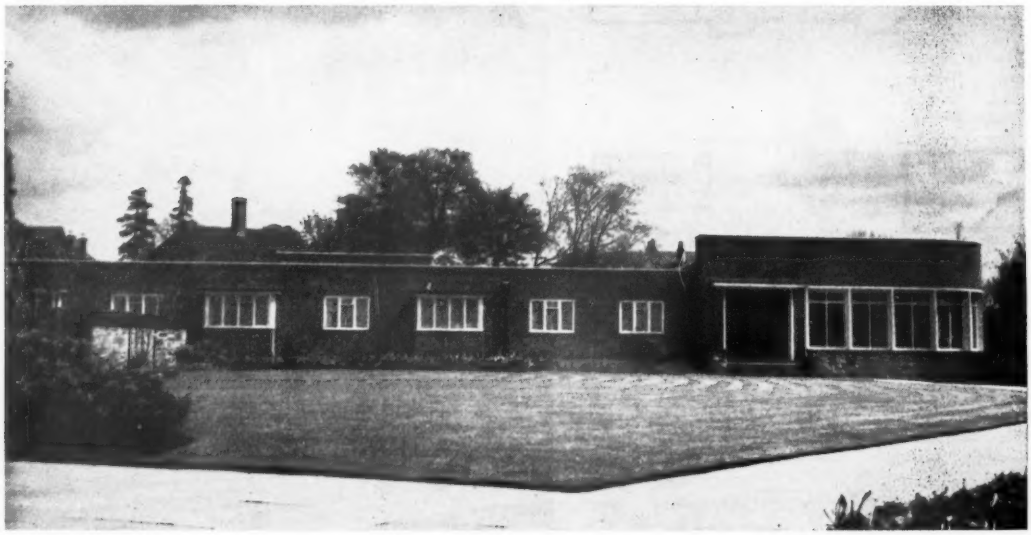


Top right: Two-storey flatlets—north side
Bottom right: General view of flatlets showing treatment of difficult feature two-storey bay, which was a requirement.

Leylands Estate, Derby: Top picture, detail of entrance to nursing cottage; residents' lounge on the right facing south with a pleasant view over part of the estate

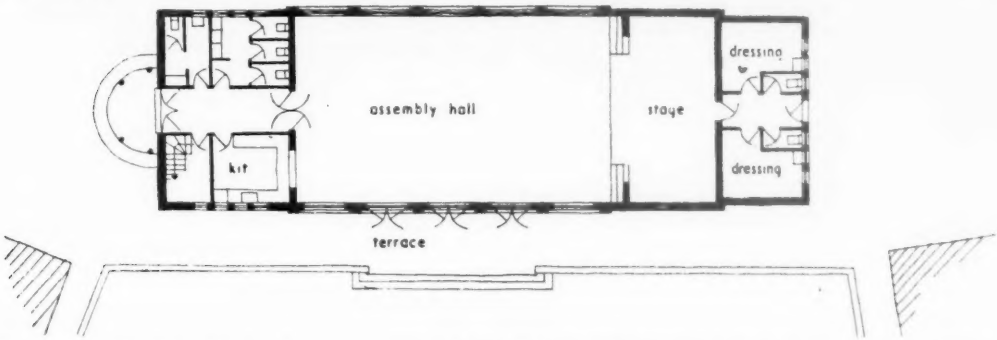
Lower picture: Veranda to the nursing wing with sliding, folding doors with clerestory light and ventilation over to the wards and services





Rest home and entrance to nursing cottage flanking the central lawn and kept low to prevent shading and excessive prominence.

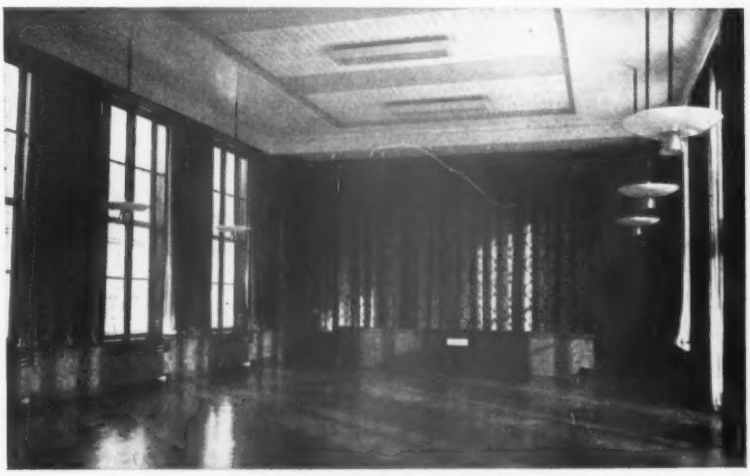
Leylands Estate, Derby: View of the assembly hall from the Harris Memorial Garden. This building forms the central feature of the site and closes the vista across the central lawn.



The facing bricks were 2 in. handmade facings from Charnwood Forest near Leicester, consisting of 40 per cent multi red, 40 per cent 'G' range brown-red with buff flashings and 20 per cent plain red. The tiles were handmade sand-faced brown-red clay tiles from the same yard as the bricks. Paving was carried out in Noelite precast concrete slabs of three colours laid in a random squared fashion. Artificial stone was used for coping.

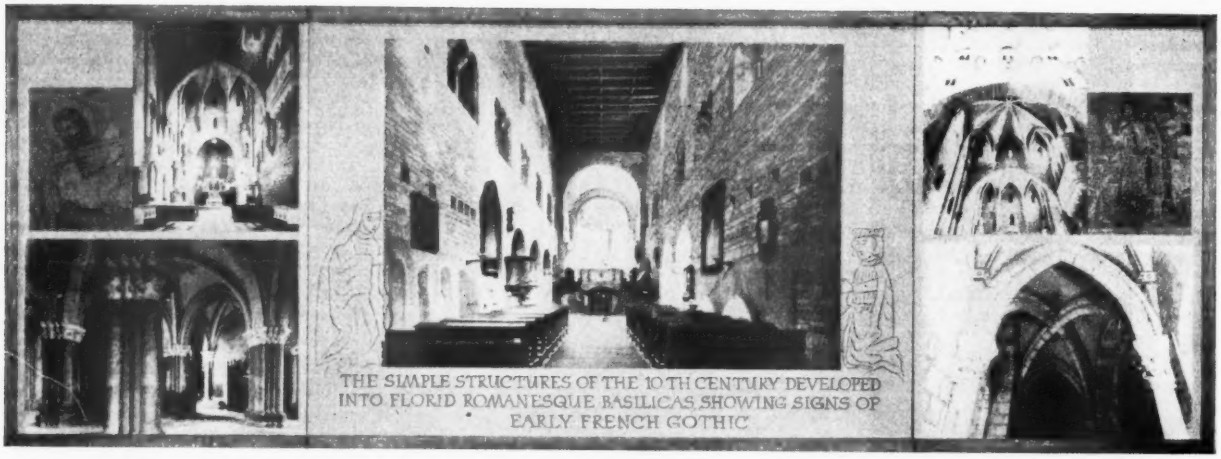
The architects were T. P. Bennett and Son (Sir Thomas Bennett, K.B.E. [*F*], Morris L. Winslade [*F*], Philip H. Bennett [*F*], W. Bonham Galloway [*A*] and George W. Bowes [*A*]).

Acknowledgement: The blocks of the plans shown in this article were lent by THE ARCHITECT AND BUILDING NEWS



Interior view of the assembly hall. Muhuhu wood block flooring. Teak flushed veneered panelling. Acoustic ceiling. Green velour window curtains, the stage curtain being in a brocade in rich red, gold and silver.

Architectural Treasures of Czechoslovakia


THE SIMPLE STRUCTURES OF THE 10TH CENTURY DEVELOPED INTO FLORID ROMANESQUE BASILICAS SHOWING SIGNS OF EARLY FRENCH GOTHIC

AT THE BEGINNING OF THE 18TH CENTURY OUTSTANDING WORKS IN BAROQUE STYLE WERE CREATED BY NATIVE ARCHITECTS, SUCH AS DIENZENHOFER AND SANTINI

Three typical panels of the Architectural Treasures of Czechoslovakia Exhibition which will be formally opened by the Ambassador of the Czechoslovak Republic and will be on view in the Henry Jarvis Hall 14–28 December (closed 25 and 26). Mondays to Fridays 10–7, Saturdays 10–5

Elemental Bills of Quantities and Cost Analysis

Report of a meeting arranged by the Ministry of Works and the L.C.C. Brixton School of Building held at the Building Centre on Wednesday 24 October to discuss elemental bills of quantities and cost analysis. Sir Thomas Bennett, K.B.E. [F], in the chair.

The Chairman: We are meeting here to examine an aspect of the cost of building—one of those things of interest to builders during a boom and of vital necessity in a slump. I say nothing about the public, who suffer under both conditions! Equally we as architects, surveyors and members of the building industry are concerned about the cost of building in a period in which we have seen a greater number of changes of technique, a greater number of materials which can be regarded as alternatives, and a greater number of shortages, than in any similar period for a very long time. We are even more concerned about relative costs, relative advantages, questions of appearance and questions of maintenance; and anything which will enable us in the design stages of building to present to our clients the alternatives which are in front of them is of the greatest possible importance to us.

While cost is the major item of consideration this evening, our discussion is particularly directed to the examination of a method of quantity surveying which has been called 'elemental bills of quantities', and to seeing whether or not this opens the pathway to a better method of assessing new or familiar materials, whether or not it presents the information in a better form to the builder who is tendering, and whether or not it has disadvantages which may perhaps appear at the time of estimating but may be counterbalanced when the successful builder begins to carry out the building.

There has never been a time when we have been more in need of advice on the cost of the materials at our disposal. One of the questions which the speakers will raise, and which we want all of you to consider and, as far as possible, contribute your experience upon, is the time at which the architect needs information on his drawings, the time at which he needs to present that information to his client, and, in relation to elemental bills, whether the moment at which the bill produces that information is the right moment or not.

We also want to see whether that is the best method of creating statistics, whether the right way to create statistics is in the form of an elemental bill which can be used by architects—and possibly misused by architects—and whether this is a reliable form of producing information for circumstances which may totally differ. We want to know whether this is a system particularly suited to programmes of buildings of a similar nature, and also to general practice with a variety of buildings of different kinds.

We want to find out whether long use of standard methods of measurement has caused builders to create systems of costing which enable them to price their bills with real confidence and accuracy, and whether the introduction of a different kind of bill, or the arrangement of items in a different form, is going to lead to confusion on methods of costing and less reliability in pricing, or whether there are other disadvantages as and when there is a departure from an accepted standard form.

It may be that we can spare a few minutes of the discussion to consider the best use of bills and quantities for the purposes of guidance, whether they are elemental bills or not. We want to hear the point of view of the architect both with regard to the provision of this information in any form and on whether it comes best as professional advice by his quantity surveyor or whether he can find it out for himself, and whether he can find it out better if he has an ordinary bill or an elemental bill. We also want to spare a little time to see whether the large office—the large official office and the large private practice—can make better or less use of this information when it creates it itself, and whether even such offices, and still more whether the small office and the small builder, can have some general guidance on costs in a published form, however general and inaccurate that published form may have to be.

I think that we are all concerned with the general efficiency of all sides of the building industry—be it architect, quantity surveyor, builder, consultant, specialist or engineer—and not merely with the efficiency of the few firms or offices that may have built up a reputation; because in the eyes of the public we are apt to find that the efficiency of the industry is judged by the average man and not by the outstanding exponents. I am sure that we are all familiar with the too easy criticism which the newspapers level against our industry as an inefficient industry. Some of us at least have taken opportunities from time to time to rebut what is clearly not true as a sweeping assertion and is the opposite of the truth with the best of the offices and works of the professional men and builders who operate in building today.

This is the field of discussion, and I am going to begin by asking Mr. West, who is a leading architect on the staff of the L.C.C., to give us the architect's point of view on the subject.

Mr. F. G. West [*A*] (Deputy Architect, L.C.C.): I want first of all to make my own position clear. I feel that perhaps the emphasis in the advertisements of this discussion has been rather over-concentrated on what I feel to be a matter of technique, namely the desirability or otherwise of the use of elemental bills for the purpose of cost control. Personally, I regard the general picture as being much more important than any part of it, and the general picture is this absolute need, of which I am convinced, for more adequate and more resolute cost control in the building industry. I feel very strongly that that is so from the architect's point of view. Afterwards, when we discuss the merits and demerits of this way of doing it or of that way, we should bear in mind that it is only part of the general picture, which is this very urgent need for adequate cost control.

I am speaking particularly from the point of view of the very large public office—it is in fact, I believe, the largest architects' department in the world. Among my other duties, I have sometimes the far from pleasant one of representing its activities to the Finance Committee of the L.C.C. That has impressed on me more than anything else the very urgent need for a completely radical review of our attitude towards and our methods and techniques of cost control.

I should like to say something about the methods which have been used in the past to secure this, and how I think, from the general organisational point of view, they should be amended. We all know that some offices have been practising more accurate forms of cost control for some time; but generally the position has been that the architect receives his brief, prepares his sketch design, very often with very limited assistance from the quantity surveyor—not that that is the fault of the quantity surveyor, who often is not approached—and then, at the appropriate stage, is asked for an approximate estimate, which in the public office is reported to the public committee concerned, or, in the case of the private practitioner, to his private client. If that is reasonably satisfactory on the face of it, sometimes the architect and the quantity surveyor hardly meet, except socially, between that stage and the stage when somebody has to worry about preparing a bill of quantities.

All sorts of things can go wrong, as we know too well, between those two stages of the job. I have often seen frantic efforts made to adjust and control costs at the tender stage of the job. That is almost hopeless. All that it is really possible to do then is to make arbitrary chops of lumps here and there and hope that eventually you will have a job which will come within what the client can afford to pay.

I suggest that that is all wrong, and that we have to do something about it. I think that fundamentally the point can be expressed in this way, that the building industry as we know it is changing very

rapidly. It was only a few years ago that it was almost wholly a craft industry. It is now becoming progressively industrialised. We have a situation in which we have this constant development of techniques set against a background of general national financial instability which makes cost control not only more essential but more difficult.

In the old days, building was in fact a craft industry, and many of the functions which are now carried out by specialists were more or less carried out by the architect. If we go far enough back we find that the architect virtually carried out all the functions himself, including those of surveyor and consulting engineer, and until the beginning of the last century he was his own general contractor. What has happened is that as building has become progressively more complicated and techniques have developed he has hived off various specialist functions to different individuals, so that we now have the architect, the quantity surveyor, the consulting engineers and the general contractor.

I suggest that it is high time that those functions were reunited, not indeed in one individual but in a team. It is not possible for us to control or put right the present economic aspects of building unless those various people get together and work as a team. As an architect, I would say that the first necessity is that that team should operate before the main design decisions are made.

All too frequently we have seen a situation in which we try to make arbitrary adjustments at the tender stage without much success. I suggest that we have to tackle this job at the design stage. It means that the architect has to realise that every design decision which he makes has economic consequences, and that under present conditions he cannot design adequately or successfully unless he designs with some reasonably precise knowledge of the economic results of his design decisions. I think that that is fundamental to the problem. I believe that this economic control has to come at the design stage. I can see that coming about only by a reorientation of the point of view both of the architect and of the surveyor towards the question of cost control at the design stage.

I should like to suggest a general way in which this might be done in a big office. I am not so well qualified to say how it can be applied to a smaller organisation.

When a job is mooted, the first thing to be assessed on the economic side is a general cost limit which must be established for the job. We know particularly well in public offices the problems relating to school buildings and to housing. In the case of school building there is a somewhat arbitrary statistical limit imposed, which is the cost per place. With housing there are other statistical limits, such as cost per room. Whatever the type of building, some general yardstick can, I suggest, be established.

Within that yardstick the architect and the surveyor have to work together. The surveyor should produce for the architect at that stage a breakdown of that general yardstick cost expressed in elements of a building. I want to differentiate sharply here between what I am saying and what may be discussed afterwards. An elemental bill of quantities is one way of doing part of this job, but it is a separate job. It is the quantity surveyor's job, I believe, working in partnership with the architect, at this stage to produce a breakdown of the total yardstick cost into elements of a building. Those elements can be very variable. Most of you will be familiar with the elements published in the Ministry of Education *Bulletin*. I believe that some large offices use other elements. The breakdown can be carried out in a number of ways.

Whatever the elements are, they must be elements that an architect manipulates when designing his building: that is fundamental. They must be things that he can assess and change when designing the building. What those elements will be will differ from building to building, but they must be of that type.

Having established those elemental yardsticks, broken down from the total, it is then a matter of co-operation between the architect and the surveyor, working on the design of this building. Obviously the architect will have in mind various solutions to his problems relating to different elements of the building—roofs, wall cladding, floors, staircases or whatever it may be. He then prepares schemes for various alternatives for these elements, and his quantity surveyor, I suggest, should be with him the whole time, assessing what he is doing in terms of a particular element.

It may well be that, as this process proceeds, one element will be made more expensive at the cost of another, which must be adjusted to preserve the overall general balance. It is very important at this stage to ensure that the design decisions are such that the building is kept within the price that the client can afford to pay, and also to ensure that the client is getting the very best value for his money in that balance between the various elements of the building. We all know of instances in which the standards in one part of a building are ridiculously high by comparison with the standards in another part. Even if the building is kept within the overall price, that is not good economic control of building. The client is entitled to have the very best balance of expenditure within the limits of what he can afford to pay, and I suggest that it is one of the most important aspects of cost control to see that he gets it.

We have, then, this stage of joint effort, with the architect manipulating varying designs for his elements and the surveyor advising him on adjustments between one element and another. It is when that stage reaches finality that the preliminary estimate should be presented to the client or to the committee of the public authority, as the case may be. If a job is worked out in this thorough fashion before the preliminary estimate is presented to the client, it will probably take somewhat longer than the old, rather slipshod method whereby a sketch design was produced and a preliminary estimate prepared; but it is really important, apart from controlling and balancing the cost, to realise that, if more time is spent, as I think that it should be, on the preliminary stages of a job, the overall time of the job will not be lengthened. The efficiency of the job will be improved to such an extent at the later stages that the overall time will not be lengthened. Although it may be difficult to persuade the client—and, being answerable to a committee, I know that only too well!—to be patient in waiting for a preliminary report, the client will not have to wait any longer for the building, which, after all, is the important thing.

Having reached that stage there will now be, as between the quantity surveyor and the architect, an agreed solution, within the limits prescribed, of all the elements of the building. That will include the skeleton of a draft specification for the whole building. It is, I think, clear that if, during the development of the working drawings, or even subsequently, after the tendering stage, there is a question of variation orders having to be issued, an assessment will be made of any variation during the first and second stages in terms of the elemental build-up of the preliminary estimate for the job, and the surveyor will be able to advise his architect that compensating savings can be made in this or that element to balance some necessary over-expenditure elsewhere.

That is how I feel that the joint effort should be made, but I would again emphasise strongly that it has to be a *joint* effort. I feel that the attitude of surveyors in the past has been, particularly at this early stage of the job, to regard themselves as compilers of statistics for the architect, instead of realising that they have a vital contribution to make to the development of the job. There is need for a reorientation of outlook on the part of the surveyor and on the part of the architect, so that the architect becomes fully cost-conscious of the result of every design decision which he makes.

That is how I feel that the work could be organised in a fairly large combined office, which has architects, surveyors and consulting engineers within its own organisation.

There are a few general points which I should like to mention. There is one which I wish to emphasise in relation to the need for teamwork, and this may be of particular importance when we come to discuss the merits and demerits of the form of bill of quantities which will be discussed at a later stage of this meeting. While this is a joint effort, the role of each partner should be very clearly understood. I will illustrate that by referring to one particular danger which I see here. If we get architects, and especially some of the younger architects, interested in becoming cost-conscious, their cost-consciousness may tend to run away with them, and if elemental figures or elemental bills are

in general circulation in a large drawing office I can conceive of some rather disastrous results if the facts in those bills or figures are used by the architect without consultation with the surveyor. These figures will be built up from past information by the use of very great experience and judgment on the part of the surveyor, and their interpretation is a very important matter. I regard it as important therefore that every decision should be taken in full consultation with the surveyor and not from information which can so easily be used out of its context.

In a very large office, in addition to the need for adequate and continuing cost control in the routine work of the office, some of us try to carry out development work which comes into rather a different category. In the L.C.C. we have certain development projects, particularly in housing; and obviously, if it is important to know what are the economic consequences of design decisions in the general run of programme work, it is essential to do so when making far-reaching decisions on quite new developments, so that cost control in that field is essential.

I do not wish to be drawn into a discussion of the merits or demerits of elemental bills. I think that that is a matter for the surveyor and not for the architect. The architect wants the information, and it is the surveyor's job to decide how best it can be supplied. In this case however we have operated a very close system of cost control between surveyor and architect on development work, which is in a measure a prototype of the system which I have suggested this evening.

From the point of view of the architect, I feel strongly that this question of cost control and economic control of the industry is also essential to the maintenance of the present system of professional control which exists in the industry. I feel that if the present very haphazard methods of cost control continue, very severe loss of confidence on the part of the building owner, whether private or public, will ensue, and some other arrangement for controlling the building industry may be devised which may not be so agreeable to us and which would not be so agreeable to the general design standard of architecture. Apart from the urgent need to put our economic house in order, it is essential to do so to maintain the present architectural standards in the industry.

Mr. J. Nisbet, A.R.I.C.S. (Principal Quantity Surveyor, Ministry of Education): Mr. West has emphasised the importance of controlling the cost of building during the design stage. This is nothing new, because our Chairman in April 1946 at a general meeting of quantity surveyors at the R.I.C.S. drew attention to the fact that our costing arrangements in the building industry were on a vague and unsatisfactory basis. That was ten years ago. In that period atomic energy has been harnessed for industrial use, yet our costing arrangements in the building industry have remained practically unchanged.

It is the need for cost data and cost control which has brought into being the twin techniques of cost analysis and cost planning. The builder can fairly accurately estimate the cost of the labour and materials required to carry out a specific operation, and the quantity surveyor from past experience can estimate the approximate cost of a building if given sufficient information. Neither of them however is aware of the requirements which the building has to satisfy, and this makes it difficult for them to decide whether or not the client is really getting value for money. The architect is, or should be, fully aware of those requirements, but he finds it difficult in many cases to form a realistic opinion, because of the form in which the costs are given to him.

He is offered, on the one hand, a very simple and crude yardstick, something like a cost per cubic foot, and on the other hand an extremely detailed and complicated document, a bill of quantities. Cost per foot cube, even for buildings of the same type, can be very misleading, and the bill, written as it is by trades, does not give a common basis of comparison.

Cost analysis therefore is merely an attempt to provide the architect and the client with the costs of a building related to its elements, so that they can judge for themselves whether the client is getting value for money. It should also provide the architect with sufficient information to help him to control the cost of his future jobs.

I am going to talk about a method of cost analysis, the method referred to in the Ministry of Education *Building Bulletin No.* 4. A number of variations of that particular method exist, but the principles underlying them are the same. When we examine costs, it is first necessary to decide upon a yardstick, and in this case the yardstick chosen is the cost per square foot. That has been chosen because it is thought that it is a reasonable measure of the accommodation which the client actually gets. Vertical space is relatively unimportant to him; provided there is sufficient for comfort, light and ventilation it does not matter, and comfort, light and ventilation can be provided by the designer in a variety of ways with varying volumes for exactly the same floor area.

The total cost per square foot however does not give us the information which we need, and must be broken down into smaller and more convenient units, which we call elements. The definition of an element is 'part of a building which more or less always performs the same function or functions'. For example, a building must always have a roof. It does not matter what the construction is; the cost of that element can always be examined and compared under the element 'roof construction'. This type of unit has a further advantage, because the architect tends to design in terms of function, and the elements should tie up with function.

A simple form of cost analysis consists merely of a list of elements, against each of which is a cost per square foot. The total of all those costs will give the total cost per square foot, which in the instance I have chosen is 65*s.* 11*d.* This figure, multiplied by the total floor area, gives what will normally be a tender cost. The elements in my example are those sometimes used for school buildings, and they can be broken down into different groups. There are first the non-constructional elements, the site overheads, as it were. Then there are the structural elements, of which in the example there are ten, followed by four elements relating to partitions, and four concerned with the furnishings of the building, which the client sees and can appreciate. There are two elements for fittings, which the client can also see and appreciate, and eight for services. The elements chosen and their definitions—the definitions are essential—can vary for different uses and can be prepared in different ways. The Hertfordshire County Council, for instance, who have built some of the finest schools in the country under strict cost limits and possibly some of the finest schools in the world, adopt a rather shorter list of elements and have used them with great success.

One advantage of this simple form is that it is very useful for identifying items of excessive or insufficient expenditure. It can save many hours of fruitless discussion and going through bills of quantities and the preparation of reduction bills. An example of this is a simple analysis which has been made covering three primary schools. The total costs for the three are very much the same, being 65*s.* 11*d.*, 65*s.* 3*d.* and 65*s.* 4*d.* per square foot. The tenders were all received at about the same time. The distribution of that total cost between the different elements however is quite different. This is Mr. West's point. The totals for the structural elements are 25*s.* 3*d.* in the case of one school and 33*s.* 10*d.* in the case of another. There is a considerable difference there, which may be explained to some extent by different sites and builders' costing systems, but I would say that it is very likely that it is caused by the designer, the architect, in the preparation of his scheme. Again, looking at the total of the elements for services, for one school there is a figure of 16*s.* 11*d.* and for another of 14*s.* These differences are probably due more to the designer than to any other reason.

We can probably learn something else from these analyses. We can for example relate the cost of an element to its importance as a necessary part of the building. For the electrical installation there is a figure for one school of 4*s.* 10*d.* Many architects and many clients may think that for a school building that is too much money. For the same school, however, for decorations the figure is 1*s.* 4*d.*, and many clients and architects will say that that is too little to spend on a school, so that the decorations will be below standard. For the second school the figure for decorations is 4*s.* 3*d.*, while for drainage the figure is 4*s.*, which architects and clients

may feel is far too much to spend on those elements in relation to their importance as part of the building.

With this type of analysis we can also compare the cost of an element in different buildings. The figure for floor finishes, for instance, is 3*s.* 1*d.* for school A, 4*s.* 1*d.* for school B, and 1*s.* 11*d.* for school C, so that B is 100 per cent greater than C. There must be a very great difference in the quality of the floor finishes in these two schools. For electrical installation the story is the same: 4*s.* 10*d.* for school A and 1*s.* 6*d.* for school C.

This type of information allows the architect to draw up a plan of expenditure. He can see where the money has been spent in his previous jobs and use that information to get a better balance of cost in his next building. He can draw up a budget allotting a sum of money to each element. In this way he can while designing satisfy not only his functional requirements but his cost requirements at the same time, and be able to avoid a tender which greatly exceeds the sum which his client can afford to spend.

For this last purpose it is necessary to have in mind the quality of each element and the quantity which has been prescribed, and that requires a little more information. This can be provided by a table showing a ratio or figure or area giving an indication of the quantity, and against each item a brief specification which gives an indication of quality.

I should like to emphasise that this is not a device to depress costs, but merely a method of providing information which will allow the architect to make the best possible use of every single pound which can be spent on a building. To obtain this cost analysis it has been necessary to prepare an abstract in reverse. We have to take the items in the bill of quantities and their costs from each trade and reassemble those items in another abstract under element headings. It was this operation which suggested that it might be a good idea to produce a bill which gave us this information straight away, and that is what led to the idea of an elemental bill. But before anything was done about it an architect and a builder were approached and the whole matter was discussed with them. In discussing the suggestion it became apparent that this kind of bill might have a number of advantages.

The discussions also underlined the fact that while the bill of quantities must remain a basis for tendering, it was now being used for a number of different purposes, and that it was the increasing complexity of the building industry, the diversity of materials and services, the introduction of scientific methods of design and construction and of programming and management, and the virtual absence of the specification, which were making the bill of quantities a very important document, but that this bill was making very few concessions to these new uses.

In recent months the elemental bill has received a great deal of attention, but it should be remembered that it is very much in its early stages; it has not been completely worked out. The reports which have been published by Mr. Nott and Mr. Rose are in the nature of progress reports on ideas which are being passed on for use.[1] In spite of that a certain amount of serious work has gone into them. They have been prepared by surveyors both in private practice and in the public service. They have been prepared for competitive tenders and for negotiated tenders. They have been prepared for buildings of different forms of construction and for at least three different types of building—for schools, for houses, and for old people's homes. Where the builders have been consulted beforehand there has never been any difficulty about tendering.

The elemental bill is a relatively simple thing to describe. Instead of being written by trades, it is simply written up in a number of sections, each section corresponding to an element. Within each element, the items are billed in the trade order. This may mean that the same item may occur in a number of elements, but experience so far is that this is not a serious difficulty, and it is one which can be partially overcome.

The preparation of the elemental bill should present little difficulty from the quantity surveying point of view. The process of taking off is quite unaffected; it is merely the worker-up who has to transfer the dimensions to elements rather than to trades. The principal advantages of this form of bill are (i) that it provides a simple cost analysis as soon as the tender is in; (ii) the quantities in the bill can be readily referred to the drawings. This has a number of advantages to the architect and to the builder, and we may hear more of them later in the discussion. The quantity surveyor is in a fairly neutral position. The advantages to him are that he can provide a cost analysis for his architect straight away without additional trouble, and so far as valuations are concerned it should assist him in preparing the valuation more quickly and probably more accurately and thereby reduce the retention money which is sometimes held. Finally, he may

Table I.—Specimen of a Simple Cost Analysis

Serial No.	Element	Cost per sq. ft.	
		s. d.	*s. d.*
1	Preliminaries and Insurances	6 10	
2	Contingencies	1 11	
			8 9
3	Work below Ground Floor Level	5 10	
4	Frame	2 6	
5	External Walls	5 0	
6	Windows	4 4	
7	Doors (External)		
8	Roof Construction	5 2	
9	Roof Lights	2	
10	Upper Floor Construction	1 8	
11	Staircases		
12	Glazier	7	
			25 3
13	Internal Partitions	2 3	
14	Doors (Internal)	1 1	
15	Ironmongery	9	
16	W.C. Doors and Partitions	2	
			4 3
17	Wall Finishes	1 2	
18	Floor Finishes	3 1	
19	Ceiling Finishes	1 6	
20	Decorations	1 4	
			7 1
21	Cloakroom Fittings	8	
22	Fittings	1 4	
			2 0
23	Plumbing (External)	5	
24	Plumbing (Internal)	1 8	
25	Plumbing (Sanitary Fittings)	1 1	
26	Gas Installation	2	
27	Electric Installation	4 10	
28	Heating Installation	6 8	
29	Kitchen Ventilation	5	
30	Drainage (Nett Cost)	1 8	
			16 11
31	Playgrounds and Paved Areas	1 8	
			1 8
	NETT COST		65 11

[1] R.I.B.A. JOURNAL, June 1956.

Table II.—Comparison of three Simple Cost Analyses

Serial No.	Element	A		B		C	
		s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
1	Preliminaries and Insurances ..	6 10				1 10	
2	Contingencies	1 11		1 1		10	
			8 9		1 1		2 8
3	Work below Ground Floor Level	5 10		6 6		3 10	
4	Frame	2 6		1 5		12 6	
5	External Walls	5 0		3 10		5 6	
6	Windows }						
7	Doors (External) }	4 4		4 6		5 11	
8	Roof Construction	5 2		8 8		3 2	
9	Roof Lights	2		1 2		7	
10	Upper Floor Construction } ..	1 8		—		1 8	
11	Staircases } ..						
12	Glazier	7		0 7		8	
			25 3		26 8		33 10
13	Internal Partitions	2 3		2 2		1 9	
14	Doors (Internal)	1 1		1 1		1 0	
15	Ironmongery	9		9		10	
16	W.C. Doors and Partitions ..	2		7		7	
			4 3		4 7		4 2
17	Wall Finishes	1 2		1 4		1 0	
18	Floor Finishes	3 1		4 1		1 11	
19	Ceiling Finishes	1 6		1 4		1 5	
20	Decorations	1 4		4 3		2 2	
			7 1		11 0		6 6
21	Cloakroom Fittings	8		1		6	
22	Fittings	1 4		2 6		1 8	
			2 0		2 7		2 2
23	Plumbing (External)	5		7		11	
24	Plumbing (Internal)	1 8		1 7		1 0	
25	Plumbing (Sanitary Fittings) ..	1 1		1 1		10	
26	Gas Installation	2		1		2	
27	Electric Installation	4 10		2 2		1 6	
28	Heating Installation	6 8		6 1		7 5	
29	Kitchen Ventilation	5		1		—	
30	Drainage (Nett Cost)	1 8		4 0		2 2	
			16 11		15 8		14 0
31	Playgrounds and Paved Areas ..	1 8		3 8		2 0	
			1 8		3 8		2 0
	NETT COST		65 11		65 3		65 4

be relieved of the questions which he is often asked by the builder and by the architect and which can be answered only by reference to the dimensions and the abstract.

In conclusion, I would point out that the elemental bill is merely an incidental fact to the main issue, which is the issue raised by Mr. West: namely that we must have information so that we can control the cost of our building during the design stage and to allow us to cost plan. The elemental bill therefore is a means to an end, and that end is the satisfaction of the client's and the architect's demand for cost information in a rational form. If these demands are not going to be disregarded, the only question which remains is how the quantity surveyor is to supply the information.

Mr. P. E. Trench, O.B.E., M.I.O.B. (Bovis Ltd.): When I was asked to speak I was unaware that no public pronouncement had been made by a builder on this subject. If I had known that, I am not at all sure that I should be here! I myself have been nobbled, rather like a racehorse, by private quantity surveyors, public quantity surveyors, private architects and public architects, and even by builders and builders' estimators; but, despite all that, what I have to say is said without duress. It is my personal opinion. Those who think that I am talking rubbish can draw some consolation from the fact that I have never worked to an elemental bill of quantities; but that does not mean to say, for those who want to draw benefit from what I am going to say, that I have not studied the subject. I have; and I think that I have looked at more elemental bills than anyone in this room.

I am going to talk first from the builder's point of view, and to end by saying something about cost analysis. I am talking on the basis of the best elemental bill that I have seen so far. From the builder's point of view, there are in the big builder's office —we shall come to the small man presently —four sections of people who are particularly interested in this elemental bill.

First, there is the estimating department. This room is packed with estimators! I know how very strongly most of them feel on this subject. Whereas we ordinary mortals find it difficult to find our way about an ordinary bill of quantities, estimators do not. They find it quite easy to price. The pricing of an elemental bill, though not very difficult, does involve more work for the estimating department, and therefore more staff. It does so for three main reasons. First, with an elemental bill the collating of the items for inquiries to be sent to subcontractors and suppliers means much more work, because of billing in sections and not trades. Secondly, the insertion of rates in the bill by the estimator will take longer, not only because of the greater number but also because of the repetitive nature of some of the items. Thirdly, the pricing out of the bill will also take longer, owing to the increased numbers of items. The time allowed for tendering anyhow is notoriously short, and if builders are to be asked to prepare estimates which take even longer, I think there will be a revolution!

In theory, the estimator should get a better picture of the building from an elemental bill, and should therefore have a better background for pricing. I think it is debatable whether the elemental bill will produce a more accurate price, and I think that possibly it will not, because the generally accepted method of estimating in this country today is pretty archaic anyhow, and no matter what sort of bill of quantities you produce I do not think that you will produce a more accurate price. The only way to produce more accuracy is to base estimates not on built-up unit prices but on work values established from work measurement and method study.

This brings me to planning. Let us consider what happens in the big builder's office today. If there is time for discussion and a builder gets up and says he has no planning department, well, I am sorry; but many builders today realise that in order to plan a job scientifically they must set somebody or some section aside for the purpose. There need not necessarily be centralised planning; it may be planning by the contract management department; but builders today are trying hard to plan their work.

Those who plan a project are not generally estimators, and they do not find it so easy to find their way round a bill of quantities. Many of them find it more difficult than *The Times* crossword. These people would find the elemental bill which I have seen of immense value if the elements suited the builder's planners and not necessarily the architect in his cost designing. Those elements may be quite different, and I suspect that they are. I suggest however that if we are going in for elemental bills, or are contemplating doing so, it is the builders who can reduce costs by better planning, whereas the architect can only get rid of those nasty shocks at the tendering stage. I suggest that if we are going to have

elemental bills the builder should be in on the ground floor in deciding what elements should be used from the planning point of view. The average builder I cannot answer for, because if he has no planning department and does not plan his job the elemental bill will be a dead loss to him, because his estimators will not like it anyhow.

The other departments in a builder's office are bonusing and costing, and contract management. From a bonusing point of view it is possible in the future that an elemental bill will facilitate the introduction of a pre-measured bonus system. We are striving for that now, but very few of us have found it. It is too early to draw any conclusions about that. On costing, I am afraid that I have a disappointment for the supporters of the elemental bill. I do not think that the elemental bill is likely to facilitate costing. By that I mean measuring work to see the actual cost against the estimated cost. It must be borne in mind that work on many elements is taking place at the same time, and what is required is not a yardstick of cost but a new and simple method of ascertaining the true labour costs of operation. It is a myth that there is a standard method of costing in the industry and that it will ever be possible to produce a bill of quantities which will fit in with some mythical standard method of costing, which does not exist as yet. Valuation of interim certificates I leave for the discussion!

On the contract management side, which is the side of the builder's business which runs contracts, I think that a good elemental bill could help. It would help the site staff and the contract management, because an elemental bill does give a better view of what you have to build, and heaven knows we start sometimes without knowing what we have to build!

Let me summarise my conclusions. For estimating, thumbs down. For planning, thumbs up. For bonusing and costing, no decision. For contract management, thumbs up. If someone can work out the net results of those attitudes, well and good, but from the point of view of the builder I would say that we do not yet know the answer.

With regard to cost analysis, I do not know how the architect's mind works when he is designing from this point of view. I only know that many of us have been carrying out cost analyses for many years before an elemental bill was ever thought of. Many of us too appreciate the factors which affect prices; the effect of all those things which have been mentioned and many more, on what a building costs in the end.

The tender price is very different from the actual cost of the job. It may be that some people would like to use the elemental bill as priced for a cost analysis, but the elemental bill as priced is a theoretical estimate and not an actual cost. To get more accuracy you must at least bring that elemental bill to the final account stage and adjust it. You will never reach the stage of an elemental bill which has in it the actual costs of the elements which have gone into the job to which it relates.

Cost analysis and planning yield the greatest benefits, from our experience, when practised in a particular office or group and are most advantageous when used on buildings of a like nature. We have on many occasions used cost analysis for an approximate estimate. Probably once in ten times we have come a frightful cropper, but an intelligent use of cost analysis, bearing in mind all the factors of the building, and the new things which you may have to worry about in the new building—whether you have three elevations on a main road or four, and so on—can give quite good answers for an approximate estimate. How architects use it when designing I should not like to say.

It is a pity to let ill-digested thought kill an idea without giving it a fair trial. We have not yet got the answer in £. s. d. to the builder's side of this business, but I think that we may get the answers if we persevere. It would be a great pity to condemn this out of hand, without giving it a chance.

Lastly, Mr. West says that the architect used to be his own general contractor, but we say that the contractor used to be his own architect!

The Chairman: The matter is now open to discussion.

Mr. N. S. Farrow (Howard Farrow Ltd.): I am glad that previous speakers have drawn attention to the fact that it is cost analysis and cost planning that are important, and that the use of elemental bills is purely a tool to achieve that end. We are trying to find whether it is a good or a bad tool, but that is all it is.

From the point of view of the builder who has used this tool on jobs, what strikes one immediately is that an elemental bill cannot be produced without complete drawings with details. That is a tremendous advantage that arises from the use of elemental bills, that you know exactly what you are going to build before you start.

From the estimating point of view I agree with Mr. Trench; the estimating department are more likely to find it a more difficult and a more lengthy process than the normal process to which they are accustomed; but once they have become used to it I think they will find that in many respects it will help them to estimate in greater detail. It may well be that when they estimate with greater knowledge of what has to be done the price will go up; so often they take chances which are completely unjustified. It will cost more money to price elemental bills and I suggest that, if they are used, competition should be limited to a very great extent, because it is going to cost the industry a lot of money if there is a large list of tenderers tendering on elemental bills.

From the planning stage—and I speak now of planning under a contracts manager, but it may be operated as a separate department—we have found that elemental bills have been of tremendous advantage on the site. We have derived a great deal of benefit from their use, and everyone on the site has come to that conclusion.

As far as costing is concerned, we feel that elemental bills have been of considerable advantage, and not the disadvantage that Mr. Trench suggested might be the case. Interim and final accounts have been settled much more quickly as a result of elemental bills.

The conclusion to which we have come from the building point of view is that after the initial shock, when people have got over the new presentation of the documents, we feel at the moment that the system is well worth persevering with and that it will probably be of considerable advantage in the long run. We all realise that one of the important things for which we are striving is architect-builder collaboration, and I think that eventually we shall get architect-builder-quantity surveyor collaboration. That is what we want, and I feel that the use of cost analysis and some form of elemental bills may help us to achieve our object, which at the moment is bedevilled by our present tendering system.

I am reminded of a builder who comes to our committee meetings and says: 'I come here with a completely open mind, but I think that this is all damned nonsense.' I plead with you to regard this with an open mind. It occurs to me that a subject such as this, which is being dealt with by three different organisations, deserves to be approached on the basis of its being a real research problem. I suggest that we should look on it in that way.

The Chairman: Mr. Farrow has given us a very fair analysis of the function of elemental bills. I do not want every speaker to confine himself to elemental bills, but to have some regard to the information which architects want to have about costs. I shall now ask Mr. Cuthill, who is an architect, to give us his views.

Mr. Charles Cuthill [*A*] (Hertfordshire County Council): We have used elemental bills for about two years, and at the moment we use elemental bills throughout the office, with our chief's backing. Some builders have suggested that pricing is difficult with elemental bills, but always—and I say quite definitely, *always*—once they have got to the site they were 100 per cent in favour of them.

We do not really want to talk about elemental bills however, but about cost planning. That is what we are here for, and elemental bills are incidental to cost planning. I feel that the architect must at the design stage have some idea of what he is designing from an economic point of view. If only architects would say to themselves 'We have *x*s. per square foot for a roof, *x*s. per square foot for a floor, *x*s. per square foot for an outside wall, and *x*s. per square foot for an inside wall', the money could be used in the correct proportions, to the advantage of the

building. If we can apportion the money to heating, plumbing, lighting and work below ground we shall have some idea of whether or not we shall get the building within the limit of cost. I support Mr. Farrow in saying let us try this in the industry and give it a fair chance. We in Hertford are trying our hardest to make it go, and up to date we have not had a builder who has refused to tender simply because of the use of the elemental bill.

Mr. M. H. Thackray, F.R.I.C.S. (Chairman, Quantity Surveyors' Committee, R.I.C.S.): I am most grateful for the opportunity so early in the discussion to place before the meeting the position of the Royal Institution of Chartered Surveyors, and in particular of the Quantity Surveyors' Committee of that Institution. Some months ago a cost research panel was formed with very wide terms of reference; they involve consultation with all sides of the industry and a considerable amount of research. That panel has not reached a stage, of course, where it is able to issue a report of any conclusions.

Arising out of that, three or four months ago a sub-committee was appointed to consider the narrower field of elemental bills. That sub-committee, through inquiry in the R.I.C.S. JOURNAL, has received an immense amount of very interesting evidence on this subject, both for and against, and with the passion to which Mr. Trench has referred. The sub-committee also has not reached the stage of presenting a report, but we hope that it will do so before very long.

I have two reasons for wishing to make this statement. The first is to say that the many members of the Quantity Surveyors' Committee of the R.I.C.S. and of the two sub-committees who are present will, the whole matter being *sub judice*, speak as individuals, and their views may in the end entirely conflict with the findings of the sub-committees. Secondly, it is necessary, as has already been remarked, that this whole subject should be approached with an open mind. The elemental bills sub-committee and the panel are endeavouring to do that and to avoid falling into the age-old trap of saying 'What has been good for us in the past is good for us now.' At the same time, they are also trying to avoid the attitude 'Here is something with a new look; let us grab it.'

Mr. D. M. Nenk (administrator): I am not going to talk about elemental bills, but I want to say that an administrator's job is to look after the client's money, and now that so much building work is done on behalf of public authorities it means that the administrator's job is to look after public money. That means that there are finance committees and councils and Ministries and the Treasury involved, and in the end Parliament. They expect accounts, and they expect to be told in advance what a building is going to cost. You become very unpopular with them if you are an administrator, or if you are an architect you become unpopular with the administrator, if your estimates of what a building is going to cost are greatly falsified in the event; and the demand of the administrator, as I see it, is increasingly going to be for more sure methods of providing in his estimates for the amount of money which a building is actually going to cost.

What that means in terms of the work of architects and surveyors is this. You have a choice between one sort of administration and another. You can if you wish go on as we have tended to. If you are an architect you design, you give the drawings, or such of them as you have prepared, to the quantity surveyor, the quantity surveyor draws up a bill, that bill goes to the builder, a tender is received, and then you have a shock and start altering things. Alternatively, you submit that tender to the Ministry, or the finance committee or the council, and they say 'This is not what you told us at first', and your stock goes down; or else they say 'This must be altered; we cannot afford so much money, it is not in the estimates', and then you have the frustration of re-doing a great deal of work which you have done before; the architect re-draws, the quantity surveyor re-measures and the builder re-tenders. It is inefficient, wasteful and frustrating, and it does not produce good building.

The alternative, from the administrator's point of view, is to set up a system which marks out the pitch for people in advance and tells them what they have to do. The Ministry may lay down costs for schools or houses or whatever it may be, but that does not tell the whole story; the cost, as previous speakers have said, is a global figure and made up of many hundreds or even thousands of separate items, each of which has to be decided at some stage by somebody, and that raises the question of how he is going to decide what sort of structure, services, floor finishes and so on to have.

As I see it therefore, all this cost analysis and cost planning fits into a rational system of administration. The administrator or the client says 'There is this amount of money to do such-and-such a building'. The architect and the quantity surveyor together, by cost analysis and cost planning, can then make their own decisions, in consultation with the client where necessary, on how that total amount is to be divided among the different elements, and in the end one hopes—and practice, in my experience, has confirmed it to a large extent already—that the result is less frustration, less wasteful re-doing of work, quicker decisions, quicker approval by councils, Ministries and the Treasury, and a better disposition of the money in terms of value for the user.

I should like to make one point with reference to what Mr. Trench has said. He says that the elemental bill will not in fact show the real costs to the builder of doing the work, but in this administrative context of which I have spoken that is not so important. What we want to estimate in advance is the tender cost, and as long as we can compare our experience at the tender stage from one job to another, that is good enough. The fact that the builder has rigged his pricing is a different matter.

The Chairman: Mr. Nenk has emphasised that an increasing amount of the nation's expenditure goes into the building industry through public money channels. We also know that to safeguard public finances a very large amount of machinery is set up, but I did not know before that it was possible by any method to get a quicker answer from the Treasury!

Mr. E. J. Cook (Richard Costain Ltd.): I should like to adopt a slightly different angle on this. Mr. Nisbet referred to the cost analysis by the quantity surveyor at the very beginning, in co-operation with the architect. It seems to me that at present, as things are in the professions that make up our industry, the quantity surveyor is under a considerable handicap, because all the experience which he brings to bear on these initial estimates is in fact derived from the results of tendering, and very little opportunity is available to young quantity surveyors to take an active part in the practical side of our industry.

To illustrate my point I would make a comparison with the Institution of Civil Engineers where, whether the budding civil engineer is employed in a professional office or in a contractor's office, it is a necessary part of his training that he shall spend twelve months on the site. It seems to me that we have a lot of work to do and a fair number of changes to make to get a comparable state of affairs in the building industry. Personally I think that there is a great deal to be done to improve the knowledge of costing and sympathy between the quantity surveyors' profession and contractors, which would be done if the R.I.C.S. could see their way clear to encompass the surveyors employed by contractors.

Mr. D. W. Masson (Institute of Quantity Surveyors): I have not had any experience in the preparation of elemental bills of quantities, but the point I want to make is that estimating, whether it is the preliminary rough estimate or the final estimate, is a skilled subject. If by the preparation of elemental bills we as quantity surveyors, or contractors, or anyone else, are enabled to make more accurate estimates, well and good; but in this elemental bill we are getting a load of information which, if wrongly used, is going to be far more dangerous than published foot cube or foot super prices.

We are told that it will enable us to have cost control at the design stage, but I have a fear that the cost control will not be at the design stage but that the elemental bills will be used merely for post-mortems on tenders, and the result will be a chance of even more variations on contracts than we have at the moment.

The next point is, will it enable contractors to run their jobs more economically, and so reduce prices and the price of

building? We have heard from the building side that contractors do think that it will enable them to plan their jobs better, and also to run them better. If that is the case, let us try it.

Finally, I would say that at the moment the Institute of Quantity Surveyors is the only body of quantity surveyors which incorporates quantity surveyors on both the professional and the contracting sides of the profession, and we are ready at any time to co-operate with any other body in the industry in this matter of cost investigation.

Mr. D. B. Bullivant [*A*]: I should like to pay a tribute to the skill and devotion of Mr. Nisbet in the development of cost analysis and cost planning. I have been concerned, with other architects, on three jobs of approximately £250,000 each, and in each case, over a period of seven or eight years, we have used a very high degree of cost analysis and cost planning. I am about to start, with other architects, on a job two or three times that size, and I should feel very diffident indeed were it not for the fact that we shall be having the benefit of cost analysis and cost planning which has been developed over this long period of years.

Mr. F. J. Meekins (quantity surveyor): We in the building industry have two types of employer: those that spend public money and those that spend their own. It is suggested, on the question of cost analysis, that the only time we ever get to know the cost of a job is after it is finished, so that it is only possible to indulge in cost analysis after the job is over. It is possible of course to use the knowledge and experience so gained in doing one's professional estimating.

So far as the people who spend public money are concerned, what they want done should be done. The professions are concerned with giving good service to their clients. I wonder however whether Mr. Nisbet and Mr. West appreciate that such schemes will involve a greater expenditure in the payment of fees? Mr. Nisbet touched on an important point affecting our profession when he said that it would not affect the taker-off, but only the worker-up. I do not know any quantity surveyor who is not most anxious about the problem of working-up. The profession is suffering not only from a lack of satisfactory working-up staff but from lack of a sufficient number. If we are going to make their task greater I fear that we are going to slow up the process of getting on with the job.

So far as guiding costs are concerned, Mr. West says that the right method is to get the team together. In view of Mr. West's position in an official office, I am delighted to hear that he encourages getting together. I believe that everybody concerned or to be concerned with the job should be in at the start. We often hear of a scheme which has been backwards and forwards to the Ministry and has come before committees and obtained general approval, and then the quantity surveyor comes in. He has a great deal to offer to his clients from the word Go, because he has had experiences of the jobs through his office which his client may not have.

In favour of Mr. Nisbet I should like to say this. I imagine that he is primarily concerned with a sequence of buildings of a similar nature—schools. If the architectural side of the schools programme will be consistent with their planning, it is clear that the builder and the quantity surveyor can be consistent with the bill which they prepare and the cost which results. That is where the key lies. It is no good saying 'This school cost so much' and then going to another field several miles away, slightly altering the scheme, and asking 'Why is not the cost per place the same?'

Mr. Nisbet showed on the screen an example of what he had in mind, and there was one intriguing point about that which may have been noticed: sometimes the preliminaries were priced, and sometimes they were not. We quantity surveyors know the tussle that we have with builders over that, and I am pleased to see that Mr. Nisbet reflects it in his 'cost analysis'—on which term I quarrel with him.

The Chairman: Mr. Meekins has referred to some of the hurdles which this type of bill has to overcome, but he has agreed that it may be of benefit in programme building, and many departments of the public service are concerned with this. It may not have the same benefit for those who have to design a very wide range of buildings.

Mr. D. L. Medd [*A*] (Ministry of Education): I have great admiration for and sympathy with quantity surveyors. I think that their task is a very unsatisfactory one; they seem to me to have to spend so much time frantically measuring drawings—very often inadequate drawings—purely for one limited purpose, namely to get a price, and then it seems to me that quite often they have to spend months, and even years, of negotiation to clear up the situation. Clients and architects must be grateful to them for these negotiations after the job, but is it the best use of time and professional fees? Year after year this task goes on, and it has been going on, I understand, virtually unchanged for a hundred years.

I think however that times have changed, and that we should look for new methods from the quantity surveyors to meet the new situations which are now confronting us. Mr. West said that the architect needs to know more about cost. Generally speaking architects are weak on matters of cost, and if the profession is to extend its influence and win more confidence from clients it must be more skilful and reliable in matters of cost and therefore better informed. The normal role of the quantity surveyor, in my view, does not help the architect sufficiently in this matter of providing information, apart from countless *ad hoc* approximate estimates and reduction bills, which are no way of accumulating knowledge and experience.

Here is a need which provides an opportunity for quantity surveyors to extend their role and make it more creative. Cost analysis and cost planning are techniques of great importance to intelligent architectural design. Cost planning relies on cost information being supplied in terms of elements in which the architect designs. To obtain data of this kind means a translation process from traditional bills of quantities. If therefore the bill could be redesigned with no detriment to its pricing function it could contribute to the store of cost planning data.

This brings us to the elemental bill which we are discussing this evening. The architect designs in terms of foundations, floors and walls, windows, ceilings and so on, the building elements in fact, and not in terms of cubic yards of hardcore, foot runs of 4 by 2 or square feet of glass. The grouping of quantities in terms of design elements therefore is giving information which is both directly ascertainable from bills and of direct relevance to design. For example, how can the architect know the cost of a heating installation when the builder's work for it is scattered amongst numerous items throughout the bill? It would be hard for any architect to say that he would not gain from such a re-shaping of bills, coupled with cost planning for design purposes; that is, if he is trying to give the best value for money within a fixed budget, as so many of us are today.

So much for the design stage. What about the position during the contract? The first thing that comes to mind with regard to the elemental bill at the contract stage is its relevance to programming. By having the work grouped and measured in elements, a presentation is achieved in the bill which corresponds to site building operations; for example, foundations, external walls, internal partitions, floors, roofs and so on, and carpenter's work can be seen clearly in its various parts, as for example roofs, ceilings, and partitions. The data are presented in a way which is directly applicable, without adjustment or translation, to the design of a programme of the building operations. I refer to a programme which breaks the whole contract down into as many different clearly defined operations as possible and equates them with time and labour. Add annotation to this, thereby removing the need for the provisional specification, and we have the means whereby the progress of the work can be checked quickly and accurately during the course of the job.

If a contract is programmed in three phases, and the quantities of each item are given for each phase separately, this does not mean that the same item is priced three times, but the architect or the builder can assess or adjust the labour or time for a particular element for subsequent phases, based on the known performance of the first phase. Having the comparative

quantities ready to hand, assessments can be quickly made on the spot, without reference back to q.s. dimensions.

Again, there is the ease with which variations can be handled. Their value can be assessed very much more quickly, and if it is desired to add a toplight or to subtract a toplight a quick single reference to the bill will show what will be added or saved. It is not necessary to go through the different trades to find out what the sum is. Some quantity surveyors may feel that prices should not be seen by the architect at all, but that that is their own prerogative. I cannot agree with this secrecy, for after all the architect is supposed to be in charge of the job, and how can he direct the job intelligently if he is in the dark on matters of cost?

There are also the day-to-day questions which arise on a job. It must be borne in mind that by the time the architect discusses the job in the foreman's office it may be two years or more since he was familiar with the drawings, and he cannot have all the answers at his fingers' ends. All architects must admit to spending a good deal of time on the site searching through a conventional bill for a piece of information and finally giving it up in despair, wishing that the bill gave the information in a readily ascertainable form. Is it roughcast glass or polished glass? Are the louvres $\frac{1}{4}$ or $\frac{3}{16}$? Where does which thickness go? All these questions arise continuously on a job, and it is much easier to get the answer quickly from an elemental annotated and indexed bill than by searching through drawings, which may exist in very large numbers indeed.

I plead with quantity surveyors to examine their century-old techniques and to ask whether they are serving present-day conditions in the most helpful way. Cost analysis, cost planning, and elemental annotated and indexed bills are welcome signs of innovations. They are techniques which even their fervent supporters admit are at a very early stage of development, but they should arouse enthusiasm in the younger quantity surveyors and be of great service to the architect and his client. Experience shows that there is everything to be gained by attempting to understand the contribution of the quantity surveyor and extend the value of the bill.

Mr. Richard Whittington (Wates Ltd.): From the point of view of a contractor's surveyor I welcome this idea of elemental bills; certainly not from the estimating point of view, which is the only point of view on which I wish to say a few words. We do not want longer bills of quantities; everything should be done to keep them short, and shorter than we see them at the moment. If elemental bills will mean longer quantities, I suggest that the opportunity should be seized to find some way of reducing the length of our bills, cutting out some of the items which are covered in our standard method of measurement. The two things should go hand in hand. This is an opportunity to review our system of taking off; let us use it to the full and not confine ourselves to one aspect which will particularly help the architect but which will not be of great assistance, though it may be of some, to the contractor.

Mr. E. W. Harvey (T. R. Roberts Ltd.): From the point of view of a builder's estimator, who seems to have the biggest objection to this form of bill, I should like to suggest not that bills should be shorter in form but that at the tendering stage the bills should be sent out in the form to which we are accustomed, in bulk quantities, and that tenders should be based on bulk quantities. I am sure that an estimator looking at 10,000 units of something will put down a much more favourable rate than he will if there are 50 here, 100 somewhere else and so on. It gives the estimator a better opportunity to see how much work is involved if the quantities are in bulk. I suggest that then, having obtained tenders on the basis of bulk quantities, elemental bills should be prepared from those bulk bills, or rather from the bulk bill of the successful tenderer, by the successful tenderer working in conjunction with the quantity surveyor. This would get over the objection of the builder's estimator.

Mr. D. Woodbine Parish, F.I.O.B.: I want to refer to the rather loose use of the word 'cost' which is evident even on the invitation card to this meeting. A word which would be more appropriate under economic planning would be 'expenditure analysis'. Costs are things which accrue and they are privy to the individual who sees them accruing, and that is the builder. Quantity surveyors and architects very seldom have access to costs, but they have access to prices and to expenditure.

The Chairman: To me 'cost' is a very much wider term than merely the actual amount of money that the builder spends, and the loose use of the word 'cost' is not intended to mean cost in the builder's sense.

Mr. A. T. Brett Jones, A.R.I.C.S. (quantity surveyor): I agree with a great deal that Mr. West said, especially with regard to the need for cost control at the design stage, and I will go some of the way with Mr. Nisbet on the need for cost analysis. I think that it can be useful, but I would say that it has very great limitations, because so many of the jobs that one gets are so peculiar that it is not possible to use them to get at the cost of any other job afterwards. Mr. Nisbet showed us on the screen the make-up of various elements. I wonder how true those figures were. As a quantity surveyor, I am very suspicious of figures and statistics. One heading was 'doors'. Did that give the real cost of the door, or in other words the cost of the door together with the deduction for the brickwork which would have been there had the door not been put in, or was it simply for the door and the lining? Things of that sort occur over and over again in any building before it is possible to get the true cost of any element. If you include deductions in your elemental bill it will be a very long document indeed, far longer I suspect than the elemental bills already produced are. I think you will get into terrible difficulties with buildings which are framed and partially framed and those which have load-bearing walls. I do not see that they can be easily shown.

The elemental bill moreover does not seem to answer some of the most difficult problems which a quantity surveyor has to decide. One is what is the most economic level on which to put a building on a sloping site. It is not possible to tell that from an elemental bill. You have to take off approximate quantities and juggle with them until you get the answer. Is it more economic to have three lifts and one staircase or three staircases and one lift? The answer can be found out only by going into approximate quantities from a very early stage.

There is sometimes a case for cost analysis after the tender has been prepared. Indeed, I would remind you that there are some quantity surveyors who already do this for quite a number of their jobs. I believe that the only true way of getting cost control is for the client to instruct the architect and the quantity surveyor to produce his building and for the two of them to get together at a very early stage in the design of it.

Mr. K. Evans [*A*]: To me there seems to be a fundamental error in all this, and it is that the elemental bill did not really emerge, valuable though it is, from an attempt to put current building techniques on a sounder footing, valuable though that is; it emerged in the minds of some architects and quantity surveyors, working together, as an inevitable by-product of an attempt to think more rationally about the whole building process. The minute that one starts to do that one stops thinking in terms of trades, because one is thinking possibly in terms of trades as yet unborn. The fundamental difference between the elemental bill approach and the trade approach is that the one is open to the development of trade techniques and new methods, with all the advantages which they may have, and admittedly some of their interim disadvantages—the one, that is, is an open system which can go forward, and a tool which can be developed; and the other is a well-tested tool, a good old pickaxe, but related to forms of building which—we may as well face the fact—are going out eventually. It is true that they have a long period to run, and during that period anything that we can do to improve the methods of costing those techniques is valuable; but the real essence of the different approach lies in the fact that the elemental bill is allied to the future. When we talk of external walls, we do not necessarily mean that they will have any bricks in them, and we increasingly see

buildings in which they do not. We shall see an increasing number in the future in which the bricklayer as a bricklayer is no longer employed.

The Chairman asked the three opening speakers to reply briefly to the discussion.

Mr. F. G. West: I have not much to answer. What I thought would happen has happened, and most of the discussion has been concerned with the merits and demerits of the elemental bill of quantities. It has been very useful, no doubt, and we have all learnt much from it. Of the architect speakers, Mr. Medd confirmed most of the points which I made, and I thank him for doing so. Mr. Trench had a crack at me by saying that in the past the builder had been his own architect. I have often wondered why we had so many dreadful-looking buildings at one time!

One point which was raised, and a very serious one, related to the additional costs which, the speaker said, were bound to accrue if really detailed cost or expenditure planning is adopted. There will be an additional expenditure of time on the part of professional people. The point which should be made clearly—and, if this is adopted, we shall have to make it to all our clients, public and private—is that the amount which indeed would have to be additionally expended in this way would be marginal compared with the enormous economic benefits which would come with a really economically controlled building industry; or, if we cannot get complete control, at any rate better control than we have now. The question of professional fees and costs must be met. It would, I think, be cheerfully met if the people who have to pay the final bill for a building could feel that they would have financial control of their building.

On the question of the validity of tender costs, which after all are mainly what the surveyor has to use for his data and on which he has to use his judgment, it is true I am sure that the tender costs and the actual cost of the job may differ, but if we could bring our expenditure control within the limits of firm knowledge based on tenders we should have gone a very long way, and it would be well worth doing even on that basis.

Mr. J. Nisbet: Two speakers, Mr. Meekins and Mr. Brett-Jones, asked a number of questions. In the time available I will take one from each. Mr. Meekins said that the cost analysis is obtained only after the job is done. He is quite right, but where does the surveyor get his information? Is not it always after the job has been designed and the tenders are in?

Mr. Brett-Jones said the cost analysis is probably not much good to the quantity surveyor who has to decide certain problems, such as the most economical way of building on a given site. These are problems which we are not able to answer. Whether we can answer them by cost analysis or any other means I do not know, but if we are going to do all sorts of haphazard exercises to try to get the answer it does not seem to me to be an efficient way of going about it. That sort of problem demands some kind of solution, but the existing solution is not satisfactory. What we have to do as quantity surveyors is to look to our clients and our architects and try to understand their difficulties and their demands, and try to satisfy them by giving them what will be real answers.

Mr. P. E. Trench: I support Mr. Woodbine Parish in thinking that there has been some woolly thinking on cost: cost analysis or tender analysis or expenditure planning —I think we have to have some terminology on which we can all agree. Mr. Nenk took me up on the question of comparing tender with tender in a cost analysis and suggested that the rigging of the tender was our concern; but there is no standardisation of rigging, of course, and therefore it is still no use comparing tenders. That may explain why the preliminaries were not shown on the screen in Mr. Nisbet's slide.

It would take a long time to explain the planning function in a builder's office. Programming is the main objective, but to build and programme work is nowadays an extremely scientific matter. The planner in a builder's office is interested in long-term and short-term programming. In the long term he has to build up a programme in the ascertained amounts of labour, material and plant required and have a good sequence throughout the operation. This is a very skilled job, and a bill of quantities in elemental form would be of considerable use to him. Planning is a big subject, and perhaps we builders ought to make it clear what planning really is in a builder's office.

The point made about bulk quantities is a very big one, but I suggest that it would be very helpful to an estimator to know the location of materials or operations on a job. Even with an elemental bill it is not easy to know in the case of a frame what floor we are talking about, and floors are important in the planning process in a builder's office.

Mr. West refers to horrible buildings, but he apparently concedes my point, and I think that Cubitt could score good points against many of the modern people.

The Chairman: The discussion has ranged over a wide series of aspects of this subject, and as I listened to it a number of things impressed themselves on me. As an architect it is a very long time since I personally tried to rove around bills of quantities, even if I could ever do it, to find the sort of information which some people seem to think an architect looks for. We need information of this sort, and the builder seeks instructions to proceed with his job, but the idea of searching for it in a bill, elemental or other, while the job is in progress does not appeal to me as efficient.

What has come out of the discussion to begin with is the fact that, in the opinion of a great many members of this audience, bills of quantities do not exactly fit building conditions today. There was widespread applause for the statement that there were far too many items, and it is clear that with changing techniques, and possibly changing methods of costing and changing tenders, and of course very substantial changes in the relationship of wages to materials, we may well have arrived at the moment when the overhauling of the means of taking off bills of quantities needs serious consideration.

Secondly, it is clear that the building industry and all its exponents have already become cost-conscious. It is important to remember that fifty years ago the great majority of the buildings in this country of consequence were in the hands of architects, but not any other sorts of buildings. Very few architects did other than a single house. They did not design housing schemes, and the great bulk of houses were built by the builders, as Mr. Trench says, while a great many other types of buildings were not the normal field of architectural practice as they are today. Moreover, fifty years ago a great many buildings were erected and the only criterion applied to them was 'Is this a fine building? Does it add to the impressiveness of the architecture of this city?' The length of time that it took to erect, the cost and the other factors were not considered at all.

There has been a change in public standards and the country is attempting to do for the ordinary citizen what it never did before, and today cost has become not merely important but vital. We have therefore to discover the best means by which the architect can design within imposed cost limits. I would submit that items taken from elemental bills, unless it is a question of buildings in a programme of extremely parallel types of design and in extremely parallel conditions, are not likely to provide for the uninitiated architect the best means of getting the information he wants at the right time; that is, when the sketch plans are on the board. I suggest that more and more the architect must consult the quantity surveyor and obtain the information which the elemental bill is designed to provide from his quantity surveyor.

That leads to the question of how the quantity surveyor is to produce, quickly and efficiently, the answer that the architect wants. Whether the elemental bill provides the quantity surveyor more readily and cheaply with that answer I do not know; but I think that building has become far too complicated for all except the smallest practitioners to attempt to do all the jobs of building themselves, if they are to do them efficiently. I think therefore that the quantity surveyor is the man to whom we as architects should look to provide this analysed information.

So far as the builders are concerned, the document must be produced in such a way that it fits best the conditions in which the builder wants to receive that information. It has been suggested widely

this evening that it will add materially to the difficulties of the estimator and that it has certain advantages in other respects; but there seems to have been a wholesale disregard of the fact that on most buildings of magnitude there are a few drawings and that occasionally the builder looks at them, and that they might even be right. Within those limits, the drawing is the proper document with which to build a building, and not adventitious information taken from a bill of quantities.

First of all therefore there would seem to be a need to overhaul the methods of providing information to the builder on which he has to price. There are certain obvious advantages in having that information in elemental form; but if it is to be accompanied by additional professional fees it is not a matter to be lightly treated. There are a great many building owners in this country who think that all professional fees are much too high and that collective professional fees are much too big a part of the total cost of building. If we still further add to them we shall be seriously endangering the whole method of building as we know it today. If we add to the percentage due to the architect, to the quantity surveyor, to the consulting engineers in various capacities who are employed on big buildings, and possibly a fee to the builder for managing the contract, any such increase must be looked at extremely seriously. Many people take this very seriously, and not least Government departments, who look very jealously on fees and occasionally produce ridiculous fees. The housing fee for architects for over a certain number of houses at one time is 2*s.* 6*d.* a house. I defy any architect to look at a house at different stages of building and to examine the individual house when it is complete and to examine it again at the end of the period of maintenance for 2*s.* 6*d.*, even if a single design is used for them all. Official bodies therefore have been too little inclined to value high technical service and pay for it in the form of fees. We have to educate them to realise that there is a financial advantage in so doing.

If therefore bills of quantities can be so framed that they clearly show to the client a saving of cost and to the builder more efficient methods of pricing, and if they enable the architect, the builder and the quantity surveyor to carry out the building more efficiently, that is a contribution to building which we must accept.

Visit to Italy

By A. M. Gear [*F*]

BETWEEN 30 SEPTEMBER and 6 October the Joint Committee on Structural Concrete organised a rapid though successful trip through Florence, Rapallo, Genoa, Bergamo, Ivrea, Turin and Milan for 150 people interested in various aspects of building.

The general high quality, variety and quantity of new construction work, particularly in Milan, had to be seen to be believed. Clearly the clients are interested in good design, and the designers are not afraid to try new materials and techniques, nor are they at all inhibited by the surroundings, however ancient. This point was illustrated many times during the tour. Two examples—in Milan, the Cathedral, where the restoration of the statuary and stained glass, etc., was carried out successfully in a modern style, and the Olivetti office block, which blended in with, though it was a considerable improvement on, the old buildings around.

The standard of finish on the outside of the buildings was, in most cases, astonishingly high. Clearly expense is not the first consideration. As an illustration, the use of large aluminium-framed double glazed windows, with Venetian blinds in between, is commonplace in Milan.

The interiors of the buildings were not always up to the same standard, but there was evidence of considerable thought down to the smallest detail. Looking over some flats in a 31-storey skyscraper, out of 20 of the bathrooms seen no two were alike. A number were perhaps over-elaborate, but the variety was most refreshing.

The buildings referred to might be considered as in the luxury class, but the standard in factories was equally impressive and the amenities provided were exceptional. This is surprising considering there are two million unemployed in Italy and there is not the same necessity to attract labour as in this country.

With this background it was disappointing that the furniture seen appeared to be designed in an attempt at the unusual rather than for use.

The structures were mainly of reinforced concrete, designed with great boldness and imagination. The rapid development of the use of this material is being stimulated by a number of first-class engineers, and by the work carried out by the Institute for Testing Models and Structures (I.S.M.E.S.) of Bergamo. Here the arrangements made for carrying out tests on the 36 ft. high model of the Pirelli 33-storey skyscraper were seen.

One result of the trip is to highlight how much building in England is still affected by an attitude of austerity. The architectural laymen of the party were frequently heard to ask: 'Why can't our architects do work as interesting as this?' In fact, there was nothing that they should not be able to do, even without the aid of the climate or the wine—but it may be doubted whether there are enough of the right sort of clients to go round. As an alternative to importing Italian business men, it might help if more credit were given to the client who has the vision and courage to sponsor imaginative design.

Society of Architectural Historians, Great Britain

THE SOCIETY OF ARCHITECTURAL HISTORIANS has been in existence in the United States since 1940. Its membership is now over 1,000 and its work receives international acknowledgment. For some time it has been felt that the establishment of a similar organisation in this country was desirable, and in order to enquire into the value and feasibility of forming such a society, a meeting was held at Durham in March of this year. The meeting agreed that the formation of a Society of Architectural Historians in this country was a worthwhile undertaking, and elected a working committee, two members of which are members of the American Society, to enquire more fully into details of organisation.

The purpose of the Society will be to provide a forum for the discussion and dissemination of ideas related to the history of architecture. It is intended that this will be accomplished by the publication annually of a bound volume of original papers on architectural history and allied subjects, by the occasional publication of source material, i.e. letters, diaries and drawings of architects, and monographs on individual architects, which would not normally be published by commercial publishing houses, and by the holding of an annual conference for the presentation of papers. In addition, apart from encouraging an interest in architectural history among the general public, the society should provide a valuable link between architectural historians in this and other countries.

It is intended that membership of the Society will be open to any person interested in the history of architecture, on payment of the annual subscription fee which is expected to be in the region of two guineas. Members will be entitled to receive the annual bound volume of papers, occasional news-sheets giving membership lists and notes of current interest and, at cost prices, the occasional publications of the Society. Members will be entitled to attend the annual conferences and will have full voting powers at the general meetings of the Society.

The Society will be affiliated to the Society of Architectural Historians (U.S.A.) and will appoint annually a committee to recommend British publications for the Book Award of the latter society.

It is intended that the Headquarters of the Society will be at the York Institute of Architectural Study, Micklegate, York, where, through the courtesy of the Director, Dr. W. A. Singleton, the rooms and library have been put at the disposal of the Society.

It is hoped to call a meeting of those interested in the Society in the near future, of which due notice will be given in the professional press. Meanwhile, anyone interested in this venture is invited to write to the acting secretary, Mr. Frank I. Jenkins, at the School of Architecture, University of Manchester, Manchester 13.

The Size of a Modular Component

By Bruce Martin, A.A.Dipl.(Hons.)[*A*]

Head of Modular Co-ordination Studies
British Standards Institution

A paper read to the
Modular Society, 15 October 1956

MODULAR COMPONENTS are the necessary basis for any system of modular co-ordination. But before we can effectively consider what we mean by a *modular* component, we must first define most precisely the nature of components and their relation to building; and this can only be achieved if all the parts of a building are satisfactorily analysed and then classified into their respective groups.

In the talk which I gave to this Society in January 1955,[1] on the classification of modern building material, I suggested that all parts of a building could be classified, in order of the building process, into the following divisions: (i) Materials, (ii) Sections, Units, and Assemblies which are collectively called Components, and (iii) Functional Elements and Building Systems. These divisions form three main groups; the materials which go to make the industrial products, the industrial products themselves, and those parts which result from an assembly of industrial products. Materials, as for example cement, sand, aggregate, paints, and adhesives, either possess no significant dimensions in themselves or are absorbed into the production of industrial products, that is, into sections, units and assemblies which are turned out of the factories as complete independent products. And since the dimensions of functional elements and building systems derive solely from an assembly of these industrial parts, components are therefore distinguished from all the other parts of a building in that they are the only products which are complete in themselves and are mostly factory-made. For this reason then it is parts, or components, which constitute the fundamental vocabulary of modular building, and it is only their dimensions therefore which require to be modulated; that is to say, given sizes which are co-ordinated on the basis of a modular frame of reference (**Fig. 1**).

In the EPA report,[2] a modular dimension is defined as a dimension which is a multiple of the module and it follows from this that a modular size is also a multiple of a module. The modular size describes the distance or space (i.e. modular space) between any two modular reference lines on the modular reference grid which are always by definition a module, or a multiple of a module, apart. This is however a purely analytical definition of a modular size; for it tells us nothing of its nature. There are a number of existing terms and concepts which are included in the idea of a modular size (**Fig. 2**).

The modular size is, by definition, one of a range of inter-related sizes. It is also a preferred or standard size, since it is one of a number of sizes especially chosen to bring about simplification (**Fig. 3**).

Furthermore, the modular size may be regarded as the nominal size for both the component and for the space allotted to that component in the design or reference grid of the building providing that the term 'nominal size' is understood here to refer to the overall size of the part including its joint. This is, of course, not a customary use of the term in the building industry today, where the term 'nominal size' often refers to the required size, an average size, or even an approximate size.

The modular size is also a reference size, to which all references are made, and in this way it is also a basic size, since it is the basis or agreed starting point for the determination of the actual size of a component.

Above all, therefore, the modular size must be recognised as a theoretic size, for it is defined as absolute. It may then be treated as the agreed unalterable base from which the actual component size and its tolerances are derived.

What then is the actual size of a component? The actual size is the measured size of the component and is dependent upon the manufacturing processes in a production run: the properties of the material used, the wear of moulds, jigs and gauges, the accuracy of the measuring instruments employed, the unavoidable inaccuracies arising out of the manufacturing process, and thermal expansion. Furthermore, in deriving the actual size from its modular size account must be

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TABLE FOR THE CO-ORDINATION OF BUILDING

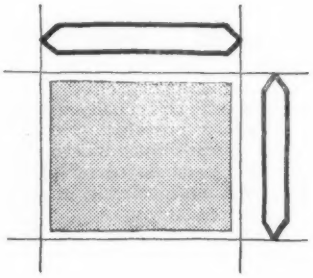
Materials	COMPONENTS: Sections	COMPONENTS: Units	COMPONENTS: Assemblies	Functional elements
METALS	BARS e.g. rod	BRICKS e.g. air wall	STRUCTURAL ASSEMBLIES e.g. frame door window truss	GROUND WORKS e.g. fencing paving
STONES	TUBES e.g.	BLOCKS e.g.		FOUNDATIONS e.g. pile raft
AGGREGATES	SECTIONS e.g. channel trim lath lumber	TILES e.g. floor roof wall	HEATING EQUIPMENT e.g. boiler cooker	STRUCTURAL FRAMES e.g. shell skeleton
LIMES PLASTERS CEMENTS				
WOODS	SHEETS e.g. board quilt sheet			
PIGMENTS OILS PAINTS				
	WIRES AND WIRE CABLES	PIPES	ELECTRICAL	ROOFS

Components

"the fundamental vocabulary for modular building"

1

Modular size



"an absolute size"

2

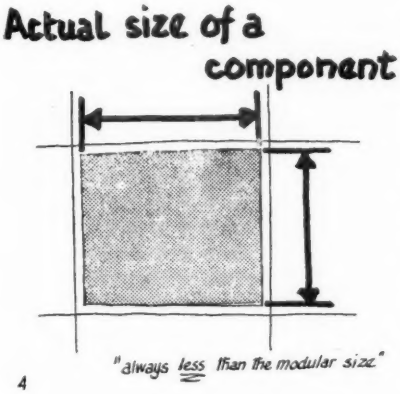
Modular size

preferred size
standard size
nominal size
overall size
reference size
basic size

3

[1] Printed in the JOURNAL for January 1955.
[2] *Modular Co-ordination in Building*, published by the European Productivity Agency of O.E.E.C., *H.M.S.O., price* 9*s*.

taken of the joint between one component and another. In a production run, therefore, the actual size differs from one component to the next and differs from the modular size by an amount which must allow for both a joint and manufacturing tolerance. This latter is termed work tolerance in the EPA report. In order then for a component to become a modular component, the actual size must always be smaller than its modular size (**Fig. 4**).



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In the building industry there has been until now no standard method of determining the permissible variations of the size of a component. It is true that in standard specifications tolerances are often given, but the method of assessing and stating these tolerances varies as between one component and another, and from trade to trade. Sometimes tolerances are based on the overall size of the component and sometimes on a nominal size. Moreover in either of these cases the tolerances may be specified in one of three ways: (i) the actual size shall not be more than a fixed amount above or below the required size; (ii) the actual size shall not exceed the required size; (iii) the actual size shall not be less than the required size. These different methods are derived from traditional practice in their respective fields and are not related to each other through any general theory. In other words, there is no agreed system of calculating tolerances. A study of the use of components on new buildings under construction shows that the actual sizes of a large number of them exceed their nominal sizes; for example, when laid, nominal 4-in. tiles may in fact measure $4\frac{1}{8}$ in. and be $4\frac{1}{4}$ in. centre to centre. The work tolerance and the joint thickness together produce dimensions which as measured on the job differ from those required. Furthermore, since the amount by which the actual size exceeds the nominal size varies from component to component, it is these variations which are the cause of much of the cutting and rearrangement of components at present necessitated on the site, to the detriment of the finished result.

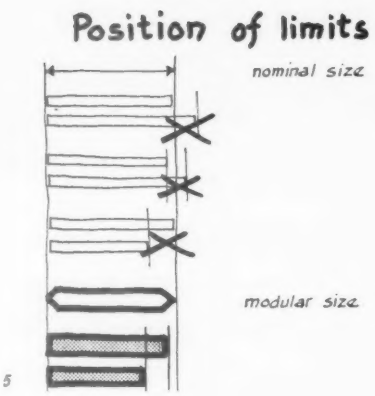
It is obvious that this inchoate situation must not be allowed to continue in a modern building industry where the new and evolving methods of assembly demand that components of different kinds are sized so that they can be fitted together easily, without further cutting or adjustment, on the site. At the present time a component is said to be made to the correct size when its actual size lies between the assigned limits. In future not only must the actual size be between assigned limits but the limits themselves must be located within a frame of reference (**Fig. 5**).

In the system of modular co-ordination, then, a component may be defined as being of the correct size when its actual size is properly related to its own appropriate modular size; and this will necessitate the use of a general system of tolerances applicable throughout the whole of the building industry.

Modular co-ordination, then, provides the necessary framework of reference for the determination of the modular size of each component; and the system of tolerances is the means of achieving the limits for the actual size. The modular size is one of a range of inter-related modular sizes for components and it is the size of the allotted space in the building which must not be exceeded by the component. And if the actual sizes are to be correctly related to their modular sizes, the system of tolerances may be said to be essential for the application of modular co-ordination to building. For should the actual size exceed the modular space, then a series of components will be found in practice to 'creep', so that there will not be sufficient space in the building for the next series of components. Complete assemblies and machine-made parts must therefore be made to known dimensions within definite limits properly located (**Fig. 6**).

The system of tolerances, then, is not concerned with the choice of a modular size for a particular component, as for example with a length of x in., but with locating the limits for the actual size of a component which is nominally x in. long. For this reason, in effecting a system of co-ordination it will be necessary to standardise not only the modular size but also the limits for the actual size (**Fig. 7**).

The theory of tolerances for modular co-ordination which I will now outline is described in detail in the EPA report; it lays down that the actual size of every component must be made so that its size lies between two limits. Now in engineering it has long been the usual practice to determine these limits by referring them to one basic measurement according to the engineering theories of limits and fits. With the building industry, on the other hand, although a part may be made between certain limits the position of the limits themselves is left undefined and fortuitous because there is no agreed method of determining their position. In a system of modular co-ordination, however, which is organised round a definite framework of reference, the position of the limits is easily determined by the condition that the component must not exceed the space allotted to it between the reference lines of the grid. The distance between two given lines thus



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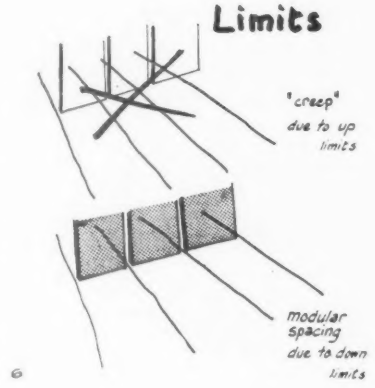

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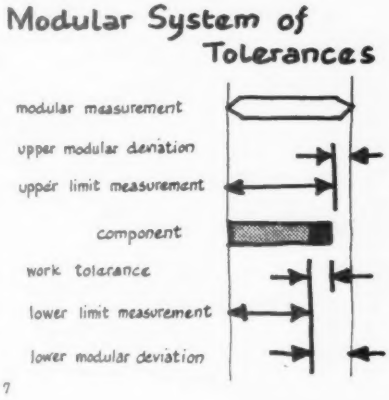

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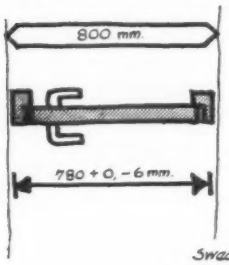
becomes the modular dimension and the limits are then related to this reference dimension according to the particular characteristics of the component concerned.

The upper modular deviation is the distance between the component and the modular plane. It is equal to the necessary minimum of joint thickness. The upper limit measurement for the component is the modular measurement minus the upper modular deviation. The work tolerance is determined as the distance between the limits within which the part can be manu-

factured. The lower limit measurement is then the upper limit measurement minus the work tolerance. The lower modular deviation is the distance of the lower limit from the modular plane and must not exceed the maximum joint thickness.

An example from the international report will serve to illustrate the application of this theory in a particular case. This is the Swedish recommendation for a modular door frame and door assembly in which the modular width is given as 800 mm. The upper modular deviation has been established as 20 mm. and for purposes of manufacture there is to be a work tolerance of 6 mm. so that the upper limit measurement becomes 780 mm. with limits of $+0-6$ mm. The door frame is made to fit the modular opening and the door to fit the frame. The door size, while being dependent on the door frame size, is not itself modular in this instance (**Fig. 8**).

Application of modular system of tolerances



Swedish door and doorframe assembly

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To sum up the theory of tolerances: we have seen that it is not practicable to produce a component to an exact size, that the actual measurement is dependent upon a variety of technical factors and that even in the production line of one type of component, the actual size of an individual component will differ from that of the next. Yet, as a finished product, a component cannot economically be cut or altered on the site. Therefore, if it is to be assembled on the site without modification, a method is needed whereby its actual size will fall between agreed limits determined beforehand, and this is only possible within a framework of dimensional co-ordination. To achieve modular co-ordination we must accept the rule whereby the actual size of any component plus its joint must never exceed its modular size.

Since modular sizes for building components are also the reference sizes for the calculation of limits I will here briefly outline the conclusions described in the international report on methods and criteria for their selection. For the purposes of selection, the modular size is represented as number and proposals are made for alternative ranges of related numbers; the application of a module to any one of these ranges will give a range of modular sizes for components.

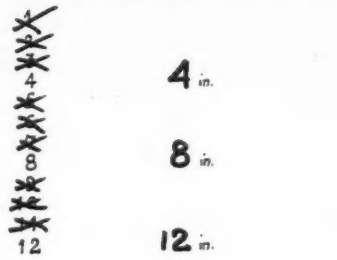
Bearing in mind that the modular range must cover the sizes between 0 and 120 in., since the vast majority of the existing sizes of components extend over this range, there are two main criteria for the selection of the modular sizes to be included. These are *simplification*, an essential contribution to economic industrial production, and *additivity*, a requirement of the building process (**Fig. 9**).

Simplification is the reduction in the number of products in an industrial range to a workable minimum to assist production, distribution and control. Additivity is the necessary condition that when any one size in the modular range is added to any other modular size, the resulting dimension must also be a size included in the modular range. Complete additivity however can only be achieved if *all* the multiples of a given size are included in the range, this size being the common factor or module. The use of a module as a common factor to a range of modular sizes is thus a means of ensuring both additivity and a degree of simplification. The degree of simplification depends therefore upon the size chosen for the module, and for the purposes of the experimental constructions in Phase II of the EPA project the working group have reached the conclusion that a module of 10 cm. will best satisfy the combined conditions of additivity and simplification, and also produce an adequate correspondence between the resulting modular sizes and the existing nominal sizes of components. There is considerable discussion on which range of sizes is most suitable for components, but much of this will be settled as the result of the practical and theoretical work included in the programme for the coming two years (**Fig. 10**).

Throughout this talk I have continually referred to the modular reference framework as a basis for the sizing and positioning of modular components. A reference framework is indeed essential to the working of the whole theory of modular co-ordination, since by means of its systems of reference lines it is possible to define both the sizes of individual components and their positions in relation to particular buildings. Although the use of reference grids is not common in architectural practice, I would like to outline here the reference system which has been developed by the EPA countries.

The fundamental reference grid used is the module grid in which the lines are all one module apart. Since however this spacing is too close for purposes of drawing at some scales and for setting out on the site, use is made of a modular grid, the lines of which may be any number of modules apart. But the module grid remains the basic and universal grid to which all references must be made. In practice however modular grids are usually used and are of two kinds: component grids and planning (or assembly) grids. The lines of a component grid bound the component and so determine its modular size and the size of its modular space. The planning grid on the other hand is for positioning the components in a particular design; as

Simplification



"for economic industrial production"

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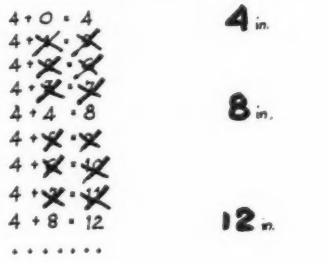
Additivity



"a requirement of the building process"

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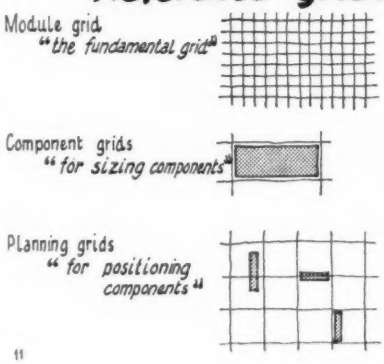
Reference grids



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a reference framework it enables each modular component to be located and its position identified and described in relation to the other components (**Fig. 11**).

In designing a modular building the planning grid is fundamental. Components are related to this grid since they are all modular, but the distances between them need not necessarily be modular. For example, where floor panels are carried on load-bearing walls or partitions the

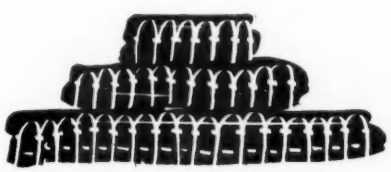
face of the wall may be displaced from the planning grid by a submodular distance.

Summary. Modular co-ordination, then, directly implies the introduction into the building industry of a rational method of determining the limits for the actual size of each component. Each component is no longer sized solely on its individual merits or in relation to certain other components or to a particular building system; each is given a standard modular size, since each is related to the common constant of all modular buildings, the module reference grid.

The problems arising out of the present lack of dimensional order in component sizes can, it is felt by the EPA countries, be largely overcome by the acceptance and adoption by the building industry as a whole of a standard system of tolerances. The adoption of such a system however will mean that in effect the existing sizes of almost every building component will require some slight adjustment. These alterations are necessary to the economic development of our industry, and will involve the careful investigation for each and every component of both the work tolerances and the modular deviations required to locate actual sizes within fixed limits.

The maximum permissible size of a component will be its modular size, less its minimum necessary joint thickness; that is to say, the maximum permissible size will *deviate* from the modular size by this joint thickness—hence the term 'modular deviation'. And it follows from this that any limits for manufacture must always be down limits on this maximum permissible component size. Further investigation will be concerned with the exact determination of modular deviations and work tolerances. We of the EPA project are going during the coming two years to study the modular deviations of components and this will form a substantial part of the work of Phase II. But independently of this work it should be possible, and I certainly believe it would be of immeasurable help, for you who are members of this Society and in particular those of you who are manufacturers to give your attention to the work tolerance or down limits required on what we will now call the maximum permissible size of each building component. I would like to end this talk by asking you to consider the system of tolerances I have outlined tonight and to see how it applies to your particular products.

The paper was followed by an interesting discussion, which is published in the MODULAR QUARTERLY *for Autumn.*



Architecture in the Newspapers

The R.I.B.A. has taken up with the Press Council the question of acknowledgment being given to architects when their buildings are illustrated or written up in the Press and the Press Council have advised contact with the various proprietorial organisations. The R.I.B.A. has therefore written to these bodies, who have promised to bring the matter to the attention of their members. It is hoped that if members themselves will collaborate by providing the necessary information as suggested below the Press will be greatly helped in giving acknowledgment where it is due.

An article printed in the JOURNAL *before the war sets out the position so clearly that it has been brought up to date and is reprinted below for the information of members.*

The inaccuracy of some lay newspapers and periodicals on architectural matters is a long-standing grievance of the profession. Not infrequently when an important new building is opened the names of all persons, important and unimportant, connected with it are mentioned in the newspaper accounts, with the exception of the architect's. In some cases the building is misdescribed or unimportant features are emphasised at the expense of important ones.

The R.I.B.A. Public Relations Committee have their attention drawn to such cases from time to time by members who feel that the profession has been slighted. Even THE TIMES, usually meticulously accurate and certainly aware of the extent of the architect's contribution, occasionally omits a reference which the profession think should have been given.

The Causes of Misdescription. The trouble lies partly in the methods by which newspapers obtain their information and in the speed at which they have to work. But it is in a large measure due to the modesty of architects as well as to their failure to realise how incapable is the ordinary Press representative—and, for that matter, the ordinary man—of appreciating the finer points of a building unless they are indicated to him.

A few of the leading newspapers, notably THE TIMES, THE MANCHESTER GUARDIAN, THE SUNDAY TIMES and THE OBSERVER, employ architectural correspondents whose contributions are in the nature of critical descriptions. But architectural correspondents are not reporters and accounts of functions such as foundation-stone laying and opening ceremonies are outside their province. These matters are handled customarily by one of the reporting staff. Where architectural correspondents are not employed, descriptions of buildings if they are published at all will be written by men with little architectural knowledge and with less if any of the critical and analytical ability of the architectural correspondents. Generally these writers want 'a story'.

The story they usually want is not necessarily sensational, though some of the more popular newspapers appear to assume a rather low standard of intelligence in their readers. Most of the daily and weekly newspapers, both national and provincial, will however discuss a building intelligently when it appears to them to be 'news', provided they have been given a lead of some kind and the requisite information has been made available.

Where such information has not been provided the journalist will write his own story, obtaining his facts from the most convenient source available, the informants being not infrequently well intentioned rather than well informed. His newspaper goes to press late at night. The sub-editor may possibly realise that the facts given are inadequate or that the architect's name has been omitted, but he is not able at that late hour to do anything about it. Therefore it is largely useless asking editors to see that architects' names are given when buildings are illustrated. With the best will in the world they cannot always see that it is done. Also the architect's name may not necessarily be 'news', though in many cases it will be.

The Cure for Misdescription. Who should be responsible for seeing that Press representatives receive the right information? The answer to this question is clearly 'the architect'. Indeed, the Public Relations Committee are of opinion that the remedy for misdescription of buildings by the Press lies mainly in the hands of architects themselves.

Where the building owners are a commercial firm and possess a Press information service of their own, the architect need do little more than ensure that the person responsible for dealing with the Press is given full information, preferably in writing. Where there is no Press service it is desirable for the architect to undertake this work himself, possibly in collaboration with the building owner. In any case, he should prepare a descriptive note of the building, which should be duplicated. Sometimes Allied Societies undertake this service when an important building is opened in their area and this can be a very valuable service.

Descriptive Notes of Buildings. It is realised that not many architects will be accustomed to drafting popular descriptions of buildings, and the following notes are intended to give guidance. First, the architect should realise that what may interest him will not necessarily interest the Press man. He should try to visualise his building from the viewpoint of a more or less ignorant layman.

The Press want 'news' and it is a little difficult to say in a few words what comes under this heading. The following are general indications: Is the building going to serve a new purpose in its neighbourhood or town? Does it mark an advance in the organisation of the building owners and, if so, what? Why was the building neces-

sary? Has it a form of construction new to the neighbourhood? Has it any unusual features of planning, design or equipment? (Any novel points should be succinctly described.) Has it any new materials or old materials used in a new way? Are there generally any new ideas incorporated in the building?

The following detail points should be observed. Use simple non-technical language, avoiding the terminology of the specification at all costs. State the facts clearly and in short sentences. Avoid theoretical matters, particularly of design. The description may be sub-headed for easy reference; begin with the full name of the building and the name, with affixes, of the architect; follow with the reasons why the building was erected, giving the name of the building owners; continue with the descriptive notes, incorporating the names of any consultants or artists as their work is described; end with the name of the general contractors and, if desired, the names of the sub-contractors and suppliers of material. Total length should be not more than between one and two thousand words.

If the names of sub-contractors are given, it is only courtesy to see that they are given correctly. The firm commonly known in the architect's office as Jones, Ltd., may be The Jones (Great Britain 1923) Manufacturing Co., Ltd.

Except in the case of the leading newspapers and journals, Press men will often use the notes provided for them as the basis of their articles, consequently the architect should write them very much as if he were actually doing so for a newspaper. It is an interesting fact that the descriptive notes on the R.I.B.A. building, issued to the Press, returned again and again in the form of Press cuttings from all over the world. The notes should be on ordinary paper with fairly wide spacing and in short paragraphs, so that the reporter can alter the wording or cut sentences out if he wishes to do so. A printed brochure is never necessary for the Press, though some building owners like to provide them for their visitors at an opening ceremony.

An Example. To illustrate the points about a building that are most likely to interest the Press, it is convenient to take the R.I.B.A. building as an example. As a building it was full of 'news' items and the following were actually found to attract the greatest interest: the recent rapid growth of the R.I.B.A., necessitating a new building; the competition open to the Empire, won by a young architect; the open interior—'the building without corridors'; novel uses of materials. all Empire products; the story of the bronze doors; the disappearing wall; the leather panelling of the Aston Webb room; the 'most valuable architectural library in the world' and its housing; the electric heating—'the building that contributes nothing to London's grime'; the interesting lighting, especially the concealed floodlighting; the Royal opening ceremony.

By way of contrast it may be noted that many points about the building which were (and are) discussed by architects did not interest the Press at all. For instance, they were not in the least concerned whether the piers in the staircase hall should have caps or no.

The Press View. The occasions on which the Press are interested in a building are (*a*) when it is projected and the perspective is published; (*b*) the foundation-stone laying; (*c*) the opening ceremony. Clearly these three will require different treatment.

In the case of (*a*) a very brief note stating the facts should always be attached to each drawing and to each photograph. For example: 'The new church of St. Michael at Little Bolsover, for which the architect is Mr. John Jones, F.R.I.B.A. The church is to be built of brick and will have a roof of copper. It will seat 500 persons.' It should be noted that either of the last two sentences can be cut from a caption by the sub-editor if he has not enough space; therefore, the name of the architect may well be put in the first sentence and not in the last.

In the cases of (*b*) and (*c*) a Press list should be prepared of those newspapers, journals and technical journals it is proposed to invite. This can be obtained from *Willing's Press Guide*[1] in cases where the names of local newspapers are not known. A brief advance notice of the ceremony should be sent to each, together with one or two cards of invitation (according to space available) addressed to the editor.

At a foundation-stone ceremony space should be reserved for the Press with, preferably, a table and chairs for reporters. There should be abundant copies of the programme of proceedings. Some photographs (glossy, whole-plate, unmounted) of the perspective of the finished building may also be provided.

When a new building is opened it is desirable to have a special day (possibly that preceding the opening ceremony) when the Press are specially invited to see the building. This Press View may vary from a simple tour of the building under the guidance of the architect and his assistants to an elaborate reception with refreshments and possibly a luncheon with speeches. This last may be desirable where the building is of outstanding importance, especially if it is in the provinces and Press men have to come from London. Usually it is not necessary and involves a waste of time, which busy Press men (who must have their story in print that night) can rarely afford.

[1] Published by Willing's Press Service, Ltd., 356 Gray's Inn Road, London, W.C.1, price 21*s*.

In any case, full descriptive Press matter should be available. Prints of photographs of the exterior and principal interiors taken by a good architectural photographer may be provided free of charge. This will at least ensure that the building is properly illustrated. The ordinary Press photographer is nearly always unable to photograph a building properly; indeed, his camera is usually not suitable for this work.

The whole matter should be considered as the rendering of service to the Press. They should never be asked to publish descriptions of buildings. They are, after all, the judges of 'news value'.

The Technical Journals. All the foregoing services should also be made available to the architectural technical journals. They will also however require special facilities, mainly to take their own photographs and to have information in advance. They can be relied on to apply for this in sufficient time to suit their own press days. In many cases, particularly with important buildings, it is desirable to fix a 'release date' before which the building should not be illustrated. It may conveniently be the same as that of the opening ceremony. The editors of the technical journals will always fall in with an architect's wishes in this.

The technical journals will also want plans and occasionally sections of the building. It is a great convenience to them if the architect will have prepared in his office tracings of the working drawings suitable for reproduction. The kind of thing can be seen in any typical plan illustrating a building in the R.I.B.A. JOURNAL. Much of the detail of the ordinary working drawing will not reproduce, as the maximum width of page in all journals is between 6 and 8 in. The important thing is that lettering should be large.

Conclusion. Architects may be inclined to argue that all this puts a great deal more work on their offices and possible expense in the matter of photography, though the latter may in some cases be borne by the building owner. But the experience of the Public Relations Committee shows that results are generally directly proportional to the amount of thought and organisation given to the matter. It is realised however that at the conclusion of a large building contract the architect and his office may be very busy. Consequently it is desirable to give some thought to this matter fairly early. Much of the procedure detailed above is usual practice in many architects' offices, but it is by no means general or uniform.

Practice Notes

Edited by Charles Woodward [*A*]

IN PARLIAMENT. Westminster Abbey (Bookstall). Mr. A. J. Irvine asked the Minister of Housing and Local Government why, having regard to the national importance of the site, no directive was issued requiring planning applications affecting Westminster Abbey to be referred to him, thereby ensuring that the proposal for the erection of the Abbey bookstall came to him for decision.

Mr. Sandys: It was thought that this was a question which could properly be left to the Dean and Chapter and the London County Council.

Mr. Irvine: Has the right hon. Gentleman seen the unsightly bookstall which has been constructed, very regrettably with the approval and the sponsorship of the Abbey authorities? With that in mind and in view, will he reconsider the question whether he has sufficient powers to protect buildings of national importance?

Mr. Sandys: I explained the circumstances in which this application was not called in. I know many people have expressed the view, which I personally share, that shop windows are out of place at the entrance to the Abbey, and I have no doubt that the Dean and Chapter will take into account the views which have been expressed. I am afraid I have no further power in the matter, the decision having been taken by the local planning authority. (23 October 1956.)

Exposed Walls (Weatherproofing). Asked if he was aware that where the walls of a house have been exposed through the demolition of the house next door by a local authority, deterioration is often caused by exposure to the weather; and if he will introduce legislation to provide for compensation to the tenant or make it an obligation that the party walls so exposed shall be made weatherproof by those who demolished the neighbouring house, the Parliamentary Secretary to the Ministry of Housing and Local Government replied: No, Sir. My right hon. Friend has no reason to doubt that local authorities are already fulfilling their reasonable obligations in this matter.

Asked further whether he was aware that the local authority is not under an obligation to put the wall right, that the house is deteriorating, that in a very short time the person living in it will have to be turned out and that the council will have to find alternative accommodation for the tenant, and will the Minister give power to local authorities to deal with these matters and reimburse them for any money spent in this connection, the Parliamentary Secretary replied: Although the hon. Member says that the local authority has no obligation to make good, it has the power to do so, and most local authorities engaged on slum clearance do carry out the necessary work of protection. (30 October 1956.)

N.F.B.T.E. NATIONAL QUANTITIES RULE. The National Quantities Rule of the National Federation of Building Trades Employers states that 'members shall not tender in competition for contracts exceeding £3,000 in total value without Bills of Quantities being supplied. In the case of contracts for the repetitive construction of small dwelling houses the Bills of Quantities shall be prepared in accordance with the principles of the Code for the Measurement of Building Work in Small Dwelling Houses. This instruction shall not apply to contracts for repairs or contracts for painting and decorating only.'

At its meeting on 26 September the Council of the N.F.B.T.E. decided to increase the figure of £3,000 in the Rule to £4,000. (1 October 1956.)

ROYAL INSTITUTION OF CHARTERED SURVEYORS. Standard Method of Measurement. Steelwork. In view of the demand for some simplification of the method of measurement of steelwork, the Standard Joint Committee for the Standard Method of Measurement have agreed with the British Constructional Steelwork Association an alternative method of measurement for use when structural steelwork drawings are provided with the bills of quantities.

The alternative method is issued as a supplement to the fourth edition of the Standard Method before the issue of a new edition. Copies of the supplement are available at the R.I.C.S., 12 Great George Street, London, S.W.1, price 1*s*., and the operative date will be 1 January 1957.

MINISTRY OF HOUSING AND LOCAL GOVERNMENT. Smoke Control. Regulations prescribing authorised fuels to be used in areas of smoke control are being prepared, and the Minister of Housing and Local Government intends to interpret strictly the section of the Clean Air Act which enables him to exempt from control methods of firing, industrial or domestic, which are either not producing any smoke or not producing a substantial quantity of smoke.

Mr. Enoch Powell, Parliamentary Secretary to the Ministry of Housing and Local Government, said that although the provisions for the prevention of dark smoke, grit and dust—provisions mainly affecting industry—would not come into force until the spring of 1958, people must not suppose that they could wait until then to do something about their problems. Neither should they assume that the seven-year period of grace allowed any general exemption from the prohibition of dark smoke during the period.

The Clean Air Council which the Minister would shortly be appointing would be a consultative one. 'There have been suggestions in the past that it should be an independent authority wielding executive powers,' said Mr. Powell, 'but that would have been constitutionally unsatisfactory. It would have led to overlapping functions and would have impaired the Minister's responsibility to Parliament. The co-ordination of the work of the different Government Departments is the province of the Government itself, and could not properly be undertaken by an independent body. The Council will, however, work directly with the Minister—he will be its chairman. It will comprise representatives of all the interests concerned in the prevention of air pollution—industry, local authorities and the fuel producers. It will provide a forum for the discussion of all aspects of the problem, and should exercise an important influence on the development of future policy and progress.' (3 October 1956.)

Restrictions on Local Authority Capital Expenditure to Continue. The economy restrictions on capital expenditure by local authorities are to be continued until further notice. In a circular to English and Welsh local authorities, joint boards and committees, river boards, port health authorities and statutory water companies, Mr. Duncan Sandys, Minister of Housing and Local Government, says that the Government have reviewed the position and have concluded that the restrictions must continue.

They were imposed in February and apply to all loan sanctions, other than for housing, school building and certain major works on roads except where a risk to health, safety or other vital interests render them impracticable. (11 October 1956.)

Sale of Self-Build Houses to Sitting Tenants. Exchequer Subsidy Concession. Mr. Enoch Powell, Parliamentary Secretary to the Ministry of Housing and Local Government, at Wellington, Shropshire, explained an Exchequer subsidy concession which applies when self-build houses are sold to sitting tenants.

Mr. Powell, who was opening the last house in a scheme promoted by the Wrekin Self-Build Housing Association, said, 'With the emphasis so much upon home ownership, with local authorities enabled and indeed encouraged to sell houses for owner occupation, it would be an anomaly if the self-help associations continued to be concerned only with houses to let. My predecessor in office therefore announced over a year ago that self-built houses originally built with subsidy for letting might be sold by the associations to the sitting tenants; and it has been decided—the rule takes effect from 25 May this year—that in such cases the Exchequer subsidies already paid on the houses to be sold need not be refunded.' (12 October 1956.)

Report of the Ministry of Housing and Local Government for 1955. This Report can be obtained at H.M. Stationery Office, price 6*s*. net. It contains a table showing an average price during 1954 for a three-bedroom traditional council house of £1,385 for a house of 914 sq. ft., and for 1955 the average was £1,417 for a house of 911 sq. ft. This is a rise of only 2½ per cent achieved despite the fact that the index of house building material prices was on average 5 per cent higher in 1955 than in

1954, while the hourly earnings of building trade workers rose by nearly 9 per cent between April 1954 and April 1955. The increase of only 2½ per cent was due to improvement in productivity, more use of mechanical plant, better organisation and management and the restraint exercised by local authorities and the Department in the approval of tenders.

In the third quarter of 1955 the price of a house of 914 sq. ft., including outbuildings, was £1,432, which is 31*s*. 4*d*. per sq. ft.

SCOTTISH HOUSING HANDBOOK. Local authorities are urged to introduce a greater variety of houses to their building programme, and to improve the internal and external design of individual council houses in *House Design*, the new edition of Part 3 of the Scottish Housing Handbook (H.M.S.O. price 4*s*. 6*d*.) issued by the Department of Health for Scotland.

The main purpose of the Handbook is to guide local authorities: first, in the selection of house types for different kinds and sizes of family; and secondly, on the design of housing having regard to the principle that should be followed, and the minimum standards of size and accommodation set by the Department.

A circular (D.H.S. circular No. 59/56) issued with the Handbook states that the Secretary of State is anxious that local authorities should now make a major effort to achieve a higher standard of house design in all their new housing.

APPEAL AGAINST A PLANNING DECISION. In allowing an appeal against the refusal of the local planning authority to permit the conversion into four flatlets of a dwelling-house, the Minister of Housing and Local Government said the dwelling-house was situated in a mainly residential area and he was satisfied that the use of the premises as flatlets would not be out of place nor detrimental to the amenities of the area. The adequacy or otherwise of accommodation and of sanitary facilities are matters dealt with in housing and public health legislation, and the Minister did not consider that they are appropriate subjects for planning control. (JOURNAL OF PLANNING AND PROPERTY LAW. November 1956.)

LAW CASE

Cole v. Somerset County Council. Town and Country Planning General Development Order 1950. This was an appeal from a decision of justices who upheld an enforcement notice served on the appellant by the local planning authority requiring her to discontinue the use of certain land as a caravan site and restore it to its former condition.

The appeal came before a Divisional Court of the Queen's Bench Division on 15 October.

Class V of the General Development Order 1950 allows land to be used as a recreational caravan site by members of an organisation holding a certificate of exemption under section 269 of the Public Health Act 1936. The Caravan Club of Great Britain and Ireland held such a certificate and in 1950 developed their land as a caravan site in accordance with the Order. The land is still being used for that purpose.

Article 4 of the Order provides that any particular development should not be carried out unless permission is granted on an application, and the local planning authority or the Minister may direct that any permission allowed by the Order shall not apply to any land specified in the Direction.

In 1953 the County Council issued a Direction under Article 4 of the Order that the permission given by the General Development Order of 1950 should not apply to the appellant's land. The Direction was approved by the Minister and was served on the appellant in 1954. An enforcement notice was served on the appellant in 1956.

The appellant applied to the justices for the enforcement notice to be quashed but they ordered the use of the land to be discontinued and the land to be restored to its former condition.

The Divisional Court, in allowing the appeal, said that Article 4 of the Order applied to something to be done in the future. It did not apply to something done in the past under the general permission granted by the Minister. What was done in this case in 1950 was done under the terms of the general planning permission which made it a perfectly lawful change of use. Neither the Minister nor the local planning authority could by the use of Directions under Article 4 of the Order withdraw the permission which had been acted upon. If it had not been acted upon it could have been withdrawn, but when a change of use had once lawfully occurred the Minister could not withdraw permission *ex post facto*. The enforcement notice was invalid and the justices had come to a wrong conclusion.

The appeal was allowed with costs. (THE ESTATES GAZETTE, 27 October 1956.)

Accidents in the Home

Paper read before the Royal Society for the Prevention of Accidents by Clifford Culpin [*F*], Chairman, R.I.B.A. Town and Country Planning and Housing Committee, 10 October 1956

MR. CULPIN began his address (which is summarised below) by saying that it would seem from the Royal Society's statistics that the home is a most dangerous place; 1,000 more persons are killed every year in the home than on the roads. While in the case of specific planning for old people the precautions necessary to avoid falls and so on are usually observed, they are not so generally taken into account in planning an ordinary family dwelling, it being forgotten that there may be old people in the family to whom a slight slip may mean a serious fall. At the other end of the scale there are the toddlers whose safety must also be protected.

In planning a public building the architect has to conform to the strictest regulations, but in a home there are few such rules to safeguard the occupant and death-traps created by badly conceived architectural design are fundamental, and after the building is up they cannot often be eliminated. They are defects that have to be avoided at the drawing-board stage.

Standards in municipal housing have been reduced to meet the rise in building costs and the saving has been made out of circulation space and in the 'working' parts of the house, such as the kitchen and bathroom, and probably it is in these parts of the house that accidents are most likely to occur. When planning for old people provision should be made for baths easy to step into, with grip-rails; the bedroom fireplace must be planned to be visible from the bed but well away from it.

Mr. Culpin said that in his opinion the ideal stair in a post-war house is one that rises half-way, has a straight half-landing from wall to wall, well lit by a big window, and then continues in the opposite direction for its second half. Only in the most highly compressed planning, such as urban maisonettes on a very expensive site, can winders be justified as space-savers, and then only at the bottom of the stair. Even with straight flights there should be a continuous handrail from a point in advance of the top step to beyond the bottom step, and not with the handrail stopping at the capping to a newel wall or at the newel post at the bottom when there is a curtail step—or even two. But the greater number of falls occurred on the level and it was difficult to offer a remedy, the causes being perhaps divided between slippery surfaces and inconvenient congested planning. Wet tiles give a highly slippery surface, polished linoleum, thermoplastic tiles and composition flooring can be dangerous, and rubber flooring is bad in certain conditions. Wood boarding comes high on the list for safety.

Other points mentioned by Mr. Culpin were badly placed fuel stores, clashing doors, working surfaces at unsuitable heights, dark corners and badly lit passages, dresser cupboard doors opening at a height where the head can be hit, outside paths passing by outward-opening windows, kitchens wherein the working space is criss-crossed with circulation lines, sink and cooker on opposite sides of the kitchen, necessitating carrying boiling saucepans across the room.

Open fires are a menace to the very young and the very old, while continuous burning fires need really adequate kerbing. Permanent guards to electric radiators are essential, and there should be ring-main electric installation with many screened socket outlets, to avoid trailing flexes from multi-plug adaptors.

Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialised branches of research and will willingly answer inquiries.
The Director, The Building Research Station, Garston, near Watford, Herts.
Telephone: Garston 2246.
The Officer-in-charge, The Building Research Station Scottish Laboratory, Thorntonhall, near Glasgow.
Telephone: Busby 1171.
The Director: The Forest Products Research Laboratory, Princes Risborough, Bucks.
Telephone: Princes Risborough 101.
The Director, the British Standards Institution, 2 Park Street, London, W.1
Telephone: Mayfair 9000.
The Director, The Building Centre, 26 Store Street, Tottenham Court Road, London, W.C.1.
Telephone: Museum 5400 (10 *lines*).
The Director, The Scottish Building Centre, 425–7 Sauchiehall Street, Glasgow, C.2.
Telephone: Douglas 0372.

Lighting in Service Ceilings. This is the title of an article by Mr. Derek Phillips [*A*] in the October 1956 issue of LIGHT AND LIGHTING, published by the Illuminating Engineering Publishing Company Ltd., of 32 Victoria Street, London, S.W.1. The article deals only with suspended ceilings and their elements and includes (1) completely luminous ceilings, (2) acoustic ceilings, with or without heating, and recessed lighting, and (3) fireproof ceilings.

Mr. Phillips mentions that the completely luminous ceiling has been developed primarily by the lighting engineer, whereas in the other two forms he is not concerned in the initial design but has to integrate his installation with ceilings designed primarily for other purposes. 'There is a realisation', Mr. Phillips says, 'that light and the form of the ceiling can do more than merely illuminate a space to a given intensity; if planned together and considered as a part of the formal qualities of the building, they can become a major element of the aesthetic environment.'

In the case of heated ceilings a point of interest to lighting engineers, and worth knowing by architects, is that lamps in recessed fittings may suffer a loss in efficiency through overheating. Mr. Phillips says that for maximum output the normal operating temperatures of fluorescent lamps are between 35 and 50° C (approx. 95 to 122° F) measured on the lamp wall, the ambient temperatures being roughly 28° C (82·5° F) below these figures. Any excess in ambient temperature will produce some loss of output. When the lamp is enclosed in an unventilated box, wall temperatures of 70° C (158° F) can occur, and with fluorescent lamps the loss of efficiency caused by this overheating would be about 16 per cent; therefore care should be taken to ensure that temperatures in heated ceilings are carefully controlled so that any reduction in efficiency can be calculated and allowed for.

Fuel Efficiency. The passing through Parliament of the Clean Air Act has given added impetus to the already fast-moving campaign for fuel efficiency, exemplified by the recent Fuel Efficiency Exhibition at Olympia, where one could refresh one's memory of well-known appliances and materials and note the new. The need for measuring the amount and composition of smoke issuing from a chimney was underlined by the number of systems on display, each requiring provision to be made for the necessary openings in the walls of the flues.

For measurement of the density of smoke passing up the flue a light-transmitting source is inserted in one wall of the flue and is focused on a photo-electric cell housed in the opposite wall. The intensity of the light falling on the cell is decreased in proportion to the density of the smoke and by suitable electric apparatus the fluctuations are recorded on an indicator. If the permitted smoke density is exceeded, audible or visible warning can be given.

Among the smoke density equipments on display at the exhibition were those by Messrs. Kelvin and Hughes (Industrial) Ltd. of 2 Caxton Street, London S.W.1; Messrs. Ronald Trist and Company Ltd. of Bath Road, Slough, Bucks; and Messrs. Electroflo Meters Company Ltd. of Abbey Road, Park Royal, London N.W.10.

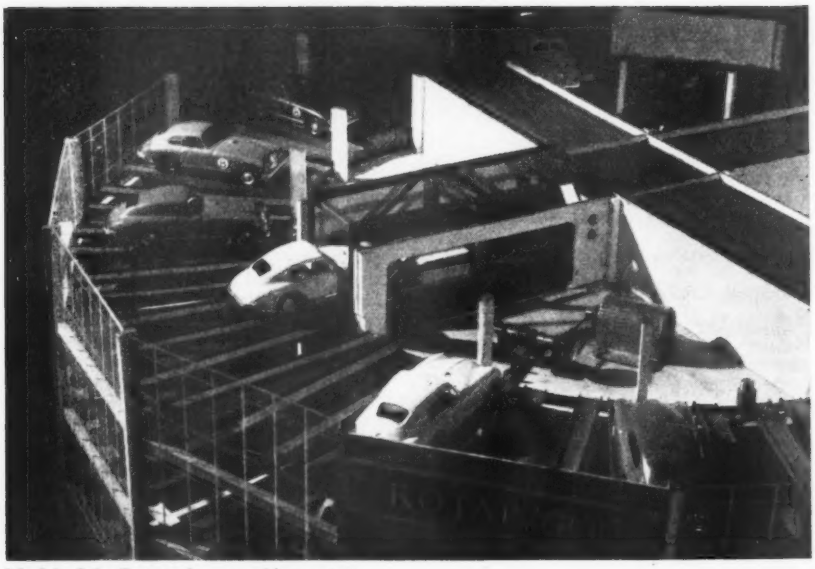
De-scaling. At one of the Building Exhibitions there was displayed an ingenious method of clearing blocked waste pipes in small installations such as those in houses; it consisted of a spirally wound flexible tubing actuated by a suitably grooved handle, so that turning the handle forced the tubing along the waste pipe where it bored its way through the choking deposits, negotiating bends on its way.

At the recent Fuel Efficiency Exhibition there was on view a somewhat similar system intended for the removal of scale in the tubes of boilers, economisers, condensers and similar equipment in commercial and industrial organisations. In this case a flexible tube contains a flexible core which rotates and can be fitted with various heads suitable for de-scaling, grinding, sanding, polishing and similar operations. The motive power can be electric, pneumatic, or by petrol engine. As scale means wasted heat it is well that all those concerned in any way with heating boilers should know that there is a machine for clearing encrusted tubes; it is called the SkatOskalO, and is manufactured by Messrs. Flexible Drives (Gilmans) Ltd. of 195 High Street, Smethwick 41, Staffs.

Site Investigation. When considering the design of the foundations of an intended structure the testing of the sub-strata was until comparatively recently usually confined to the digging of a few trial holes, but that was a somewhat uncertain and unsatisfactory method as it did not give a picture of the whole of the site.

The Trussed Concrete Steel Company Ltd. in their Review No. 17 describe a system they use which gives much more reliable information. After study of the layout of the proposed building, inspection of geological survey maps of the district (if available) and inquiries regarding mine workings in the vicinity, the site is super-

Metal framed ceiling incorporating air outlets of conditioning system developed by Thermotank Ltd., of Glasgow, for General Motors Technical Centre, Detroit, U.S.A.



Model of the Rotapark car parking system

ficially surveyed and mapped and positions for penetration tests are marked. A penetrometer is then used, consisting of a rod screwed at one end into a bullet-shaped point and at the other end into a driving head actuated by a drop-hammer. By this means it is possible to penetrate 30 ft. in a few hours, the penetrometer normally being driven to refusal; that is, when fifty blows of the hammer do not drive the penetrometer more than half an inch. The rate of penetration at various depths is plotted on graphs and from them the depths of apparently suitable bearing strata over the whole site can be determined. The indications of suitability given by the penetrometer are then amplified by ordinary borings, enabling samples of soil to be tested, including the analysis of ground water and any clay suspected of containing sulphates or other chemicals deleterious to concrete.

The company state that the average time taken to investigate a site is under a week and that the penetrometer tests, and a few boreholes, disturb a site very little. The address of the company is Truscon House, Lower Marsh, London, S.E.1.

The Rotapark Car Parking System. It was recently reported in the daily Press that the City of London were willing to receive applications from developers who were prepared to finance the building of multi-storey garages in the City to ease the parking problem, and that a number of applications had already been made.

A model of a new parking system was recently demonstrated to the Press; it is called the Rotapark and one of the advantages claimed by the originators is that the building needs a site only 100 ft. by 100 ft. The essentials of the system are as follows: the building is circular on plan and in the middle are four car lifts forming an equal-sided cross. On each storey there is a revolving platform extending from the lift openings to the external walling, wide enough to take the longest car. Fixed to the floor is a series of troughs to accommodate the wheels of a car, thus forming a number of radiating open parking bays.

On entering the Rotapark the car is driven, as directed, to one of the turntables opposite the entrance to the appropriate lift, where it is turned to face into the lift. A specially-designed trolley then emerges from the lift and by means of protruding forks attaches itself to the front of the car and withdraws into the lift, pulling the car with it. When the lift arrives at the selected storey the moveable platform revolves until a vacant car-bay is opposite the lift. The trolley then pushes the car into the bay, releases itself and returns to the ground floor. When the car is wanted again the process is reversed. As there are four lifts, the platform does not normally need to rotate, one way or the other, through more than a quadrant.

The whole of these operations can be electronically controlled by one man on the ground floor by means of push buttons which can select the storey, the lift and the car space.

The system has been originated and developed by Messrs. Griggs and Son Ltd., of 56 Victoria Street, London, S.W.1.

Weather and the Builder. The Meteorological Office comes in for a certain amount of good-natured chaff if the weather does not fulfil prophecy, but the banter is usually from people to whom the result does not matter very much except that they may take, or not take, their 'macs', with fortunate, or unfortunate, results. To the builder however it is a different matter, for unexpected rain may disrupt work on the site. The Ministry of Works have published Advisory Leaflet No. 40, *Weather and the Builder*, in which the Met services available to the builder are set out.

Routine local area forecasts may be obtained by telephone from the various offices of the Meteorological Office, and by arrangement these forecasts may be sent by telephone or telegram to any site at any specified time. Also forecasts may be specially prepared for a particular site, and these will take into account the position of the site, be it in a valley or in hilly country where the lie of the land may tend to 'funnel' wind coming from a particular direction, and gales may occur that would interfere with work on the site. Warnings of frost may be obtained during the continuance of a concreting job, or reports whenever the weather is expected to be favourable or unfavourable for a particular operation.

These forecasts and reports are not given quite free, but the price is cheap when it is remembered, as the Ministry says, that 'every year an incalculable number of man-hours are lost to the industry because of unfavourable weather conditions that cause work to come to a standstill'.

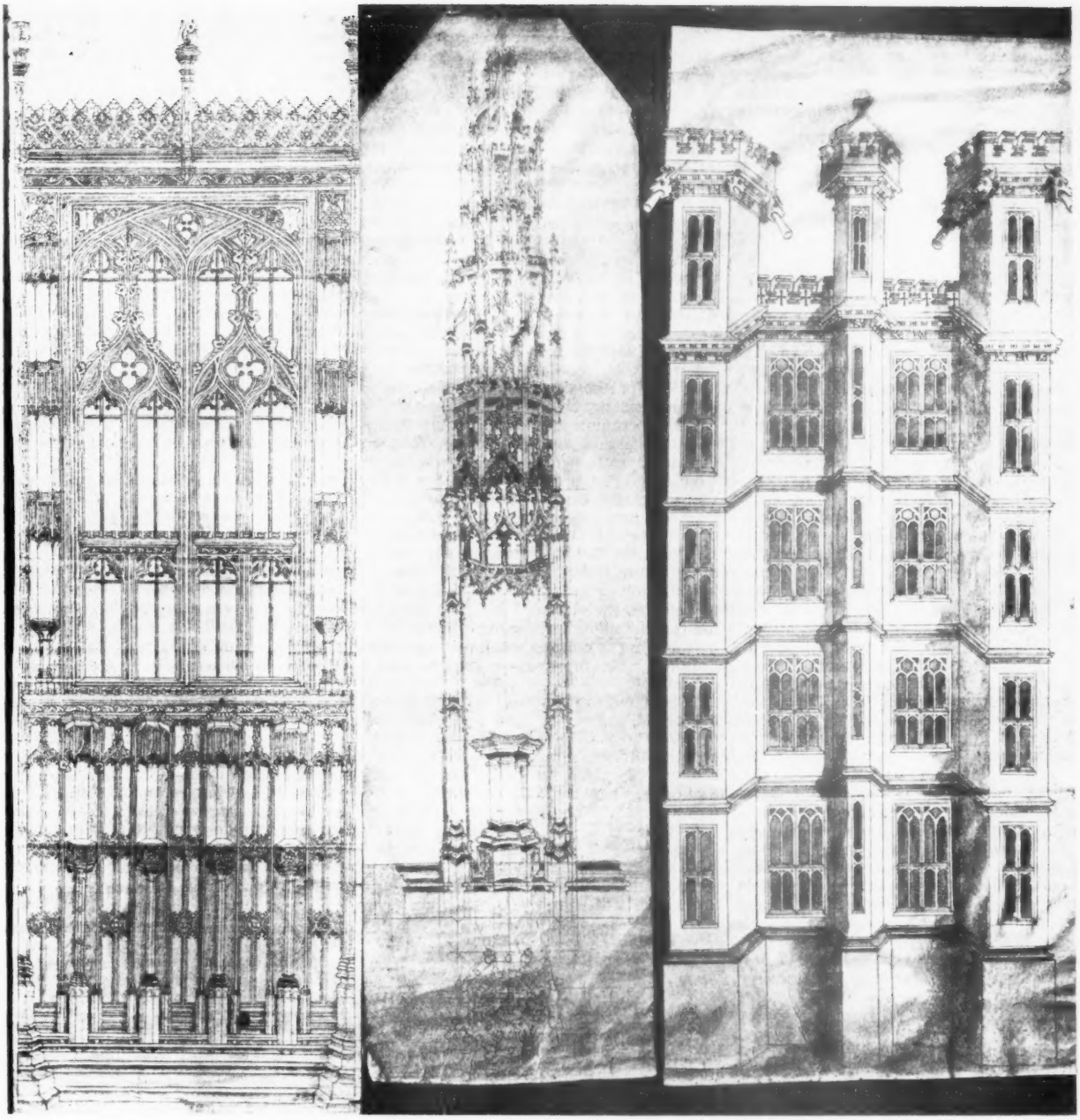
The leaflet may be obtained from H.M.S.O. at 4d. a copy, and at reduced rates for quantities.

Solid Fuel Appliances. List No 13, dated July 1956, of *Recommended Domestic Solid Fuel Appliances* has now been issued by the Coal Utilisation Council, of 3 Upper Belgrave Street, London, S.W.1. and the Solid Smokeless Fuels Federation, of 74 Grosvenor Street, London, W.1. An introductory note states that 'In recommending appliances in this list it is assumed that the appliances will be correctly installed and that the performance will not be handicapped by unsatisfactory design or construction of the house or chimney'.

Appliances marked with an asterisk are recommended by the Ministry of Fuel and Power for local authority and equivalent housing, and the Ministry of Housing and Local Government expects all local authorities to make their selection from the list. The larger or more expensive appliances are not marked with an asterisk.

British Standards Recently Published. B.S. 1329: 1956. **Metal Lavatory Basins for Domestic Purposes.** This is a revised Standard and deals with lavatory basins intended mainly for domestic use and made of enamelled cast iron, enamelled pressed steel or stainless steel. The overall dimensions are the same as for basins in ceramic material. Tests are included for resistance of the enamel coating to acids, alkalis and abrasion, and details are given of suitable pedestals where this method of support is required. Price 3*s*.

B.S. 569: 1956. **Asbestos Cement Rainwater Pipes, Gutters and Fittings.** In this revision a requirement has been added that fittings, as well as pipes, shall be tested, and alternative methods are specified. The figure for water absorption has been revised and one larger size has been added to the range of ogee gutters and their fittings. Price 10*s*.



From left to right: drawings AE7/15, AE7/16 and AE7/17

Three Gothic Drawings in the Smithson Collection

THERE ARE THREE late mediaeval drawings in the Smithson collection in the R.I.B.A. Library which seem, perhaps because they are so much earlier in date than the rest of the collection, to have escaped the notice of architectural historians.

The most remarkable (Box 3 AE 7/15) is a large and splendid drawing (37½ in × 11¾ in.) of or for one bay of Bishop Fox's chantry in Winchester Cathedral. It is a pen and ink drawing, on three sheets of paper of different sizes stuck together to form a long thin strip. There has been a good deal of preliminary mapping out with a point: the circles, for instance, on which are based the quatrefoils and the cusping, have been scratched in accurately beforehand, with a fixed radius from a centre. On this basis the ink drawing has been made; most of the straight lines ruled, the remainder—that is, minor straight lines, curves, and ornamental detail—drawn freehand, not always very precisely. The smallest scale cusping is particularly haphazard, as is more obvious in the drawing itself than in a photograph. The design is very nearly shown as a pure

elevation; but the niches and canopies are shown in perspective, the shading, also in pen and ink, has been applied liberally throughout.

English mediaeval architectural drawings are very rare indeed. Two large drawings among the Cottonian MSS. in the British Museum (B.M. Cott. MS., Aug. I. i. 2, 3) for the chapel and a projected tower at King's College, Cambridge, are comparable in size to the Fox chantry drawing, but are of a different type. They are coloured, and show the whole building in perspective, with the detail more crudely and inaccurately drawn. One of them shows human figures walking about in academic dress. They would seem to be, not working drawings for the masons, but show drawings to attract and inform the client. To the same class probably belongs another Cottonian drawing (Aug. II. i), for a monument to Henry VI, for although it is far closer in style to the Fox chantry drawing, it again shows the whole monument, and in perspective. (For these three drawings, with reproductions, see J. Harvey, 'Early Tudor Draughtsmen', *The Connoisseur Coronation Book*, 1953, pp. 97–101).

Nor, I think, can the Fox chantry drawing be a survey, made after the chantry had been built, for it differs in several details from the work as executed. In the lower half of the drawing, for instance, there are more mouldings shown at the base, the second row of cusping is level with the bases of the niches rather than lower, and there are beasts shown at the corners of the canopies. In the upper half there are vertical series of three niches instead of four. Finally, although the drawing must be a measured drawing, for if the scale is taken to be 1½ in. to 1 in. the vertical measurements correspond very closely indeed to the executed chantry, the horizontal measurements are quite different: in the drawing the height of the bay is some 2½ times its width, in the chantry 3½ times. It does not seem possible that if this were a survey a drawing otherwise so accurate should be so inaccurate in this one respect; whereas if the drawing came before the building it might well have been decided to change the proportions after the drawing had been made.

It seems to me most probable that this is in fact one of a series of original working drawings for the chantry. There is an interesting drawing of this type, a large design for a battlemented parapet, in the library at Hatfield. (Br.Mus. Facsimiles, 372, ii, 13, and see Harvey, *English Mediaeval Architects*, p. 272 and note 16.) But the Fox chantry drawing is bigger game than this: an English architectural drawing that is at last comparable in size, treatment and quality to the great late mediaeval drawings of the Continent, such as those of Hans Puchsbaum for St. Stephen's in Vienna (Grimschitz, *Hans Puchsbaum*, Vienna, 1947), or the series of designs for the cathedral at Ulm, now in the print room of the Victoria and Albert Museum. Like them it is only for a portion of the whole and very nearly in pure elevation; similar showing of niches in perspective is found in the Ulm, though not in the Vienna, drawings. On the other hand these drawings have little or no shading, and are somewhat more precisely drawn.

It is a pity that no building accounts or contracts for the Fox chantry have as yet come to light. It was put up some time before Fox's death in 1528; probably before 1526, for this is the date of the presbytery screens, which are similar in general design to the chantry but contain a good deal of renaissance detail. In 1532 Thomas Berty contracted for the vaulting of the presbytery aisles at Winchester, and it is very possible that the chantry, which is similar in detail to the presbytery, was also his design; he had been working in Winchester since at least 1520, and sent his son to Fox's college at Oxford. (For Berty see Harvey, *op. cit.*, p. 32–33.) On the other hand the drawing for the chantry is of such high quality, and the chantry itself so sophisticated an example of the full Court style, that it might be the work of one of the Court architects, perhaps the great William Vertue who had already provided Fox with the design for Corpus Christi College at Oxford. One wonders, too, how the drawing came into the Smithson collection. It is possible that the first known member of the family, Robert Smithson (1534–1614), was the son or grandson of a mason who worked on the chantry. But no evidence has been found for any mediaeval Smithson masons, and of course the family may have acquired the drawing in some quite different way.

The second drawing (AE 7/16) seems to be for an alcove set in a wall with an elaborate free-standing canopy above; it is perhaps for some detail of a reredos or chantry. Someone, probably one of the Smithsons, has endorsed it 'Platt of a foont', which it certainly cannot be. It is far smaller than the Fox chantry design (5⅞ in. × 9½ in.), but must surely also be a working drawing. The preliminary setting out has been drawn lightly in red, and consists of a grid of which the three vertical lines, one inch apart, give the centre line and the centres of the two main shafts, while the horizontal lines give the top of the pedestal, the divisions of the shafts, and the stages of the canopy. The spacing of these lines starts somewhat ambiguously (in inches) $1\frac{9}{16}$, 1½, ⅞, and continues simply enough 2, 2, 2, 2½, 1½; I cannot find any comparable system in the Fox chantry design. The main lines of the tracery have also been sketched in before in red; the design proper is in black ink with the shadows tinted in with a brush. There is a plan given at the bottom and the base mouldings on the left hand side are drawn cut away to show their profiles.

Finally, the third drawing (AE 7/17, 19⅜ in. × 7⅜ in.) seems to be a design for a late mediaeval secular building, and is perhaps more of the type of the King's College drawings. It is drawn in ink, with the windows tinted in in red and mauve, and with little domes roughed in in blue on the top of the turrets. On the right hand side are the cut-off tops of four more turrets similarly domed; on the left the drawing has been carefully cut along the profile of the turret, so that the building may have been shown extending farther in this direction; and on the back is the fragment of a plan, with elaborate mouldings precisely shown, for the base of a tower which has no relation to the drawing on the other side. This drawing, in fact, must be a portion of a larger one, which itself was drawn on the back of an earlier plan. It was for some most magnificent building, perhaps one of the royal palaces; the domed turrets are somewhat reminiscent of old (and probably inaccurate) pictures of Richmond Palace, but according to the 16th-century survey the buildings there were only of three storeys. It is intriguing to find this drawing in a late 16th-century collection; what influence had such designs, with their great windows, turrets, and formidable squareness and symmetry, on Elizabethan domestic architecture?

MARK GIROUARD

The I.U.A Fifth Congress

WE ARE NOW in a position to give more details about the Fifth Congress of the I.U.A. which will be held in Moscow 25 August–1 September 1957.

It will be remembered that the theme of the Congress is 'Construction and Reconstruction of Towns, 1945–1957.'

The National Sections of the I.U.A. have already received a questionnaire as a result of the preparatory meeting held in Warsaw. At the beginning of October, 17 sections had already made known the towns which they had selected as examples for the Congress.

The President will be M. Pavel Abrossimov, assisted by a directing committee composed of MM. Tchumi, President of the I.U.A., Ceas, Walker, Mordvinov, Vice-Presidents, Vago, Secretary-General. M. Abrossimov is also the Chairman of the organising committee. Other members of the committee are Mm. Baranov, Vice-President; Novak, Treasurer; Khodjaev, Secretary; and Loveiko, Svetlitchny, Toutouchenko, Charonov, Chvarikiv.

The Congress fee has been fixed at 64 roubles[1] for architects from member countries of the I.U.A.; 74 roubles for architects from non-member countries, and

[1] At the time of going to press, equal to 16 dollars, £5 17*s.* 6*d.* or 6,000 French francs, but as the rate of exchange varies from day to day members should consult THE TIMES for the rate at any particular date.

observers; 42 roubles for the members of families of those attending the Congress, and 22 roubles for students. The fee covers entrance to the solemn opening of the Congress and the closing celebrations, sessions, visits, excursions and papers. Members of the Congress will be able to obtain the record of its work at a reduced price. This publication will include the remaining volume of *Habitation 1945–55*, the first volume of which was prepared for the Congress at The Hague.

The following exhibitions will be held in Moscow at the time of the Congress: the travelling I.U.A. exhibition, a special exhibition on the theme of the Congress, an exhibition of the entries for the students' competition organised by the I.U.A. and finally a Russian exhibition of architecture and town planning.

The opening session will be held in the morning of 26 August in the great hall of the Kremlin; visits and excursions in Moscow and its surroundings will be organised in addition to visits to the theatre, concerts, etc. Those attending will be accommodated in hotels in the capital, except for students who will be lodged in University hostels.

The cost of living in Moscow during the Congress, including food, travelling and service, will be of the order of 10 to 17 dollars[2] a day according to the quality of the hotel. The organising committee will be issuing precise information on this subject quite soon.

A series of study trips is planned after the Congress closes. The organising committee is preparing about a dozen tours of 3–10 days' duration. A circular giving all the details of this programme will be circulated shortly to National Sections. The Russian railways will grant special reductions.

Diplomatic representatives of the U.S.S.R. will be receiving instructions to facilitate the granting of the necessary visa to all participants whose names are sponsored by the National Sections of the I.U.A.

The Secretariat of the Fifth Congress of the I.U.A. is at 7 rue Chtchoussev, Moscow K–1 (telegraphic address UNIARCH Moscow).

The Secretary-General hopes that National Sections of the I.U.A. and Associations of Architects will give as wide a circulation as possible to this information.

[2] £3 12*s.* 0*d.*—£6, but see [1] above.

Correspondence

THE GARDEN CONTROVERSY

The Editor, R.I.B.A. Journal

SIR,—The isolated piece of research by the Department of Agricultural Economics of Wye College which you published editorially in October could possibly be misleading to architects who have not studied this problem.

The worst waste of land in conventional British low-density housing occurs not at the backs of houses but at the front. Back gardens of decent shape and size may well pay their way economically (although I do not think the case is proved). Deep front gardens, unnecessary grass verges and all the waste space at corners produced by wide sight-lines clearly do not. The authors of the report are therefore guilty of exaggeration in writing: 'It may be conceivably desirable to increase housing densities for financial, architectural or social reasons, but if this is so the arguments for the proposition should be made to stand on their own merit.'

Yours faithfully,

LIONEL BRETT [*F*]

REPORT ON HIGH DENSITY HOUSING SCHEMES IN EUROPE

SIR,—I read with the greatest interest the second part of Mr. R. A. Jensen's report on High Density Housing Schemes in Europe. Although the illustrations are not all of uniformly high architectural quality, and Mr. Jensen's preference for R. C. frame rather than structural brickwork is not universally applicable to English conditions, this article in nine pages contains more wisdom than can be found in most of the rest of the published literature on the subject, including all the by-laws!

Yours faithfully,

THOMAS PEATFIELD,
Peatfield, Mayo & Bodgener [*AA*]

DEAR SIR,—In many respects I am sorry that Sir Patrick did not await the second instalment of my Report,[1] which was mentioned in the September number of the JOURNAL, and where it indicated that tabular information on costs and densities would be given. These further details do, I believe, show that although there have been very many difficulties in arriving at precise costs and densities on many of the schemes, due to the incredible reluctance or inability of many architects and planners to produce factual information, there is sufficient information from which may justifiably be drawn any conclusions which have been reached.

I can assure Sir Patrick that there is no question of 'excuses' or the withholding of precise figures on density where these are available, since I was only concerned in conveying in strictly factual form the evidence which is there for all to see. I hope very much indeed that this evidence may be looked at by all concerned dispassionately and the valuable lessons, which may considerably ease some of our more acute present-day problems, be learned from it.

Clearly, I think, my Report and the research which I have been carrying out—without, it should be emphasised, preconceived ideas—is concerned with intensive urban residential development. And whereas this may well normally be referred to in terms of persons per acre—net density—there may be occasions on which overall or gross densities are also referred to and these cases should be self-explanatory from their context. In the Scandinavian countries 'exploitation co-efficient' is preferred and is just as valuable a yardstick: in fact there seems to be every advantage in avoiding too rigid and too narrow definitions or bases of assessment as there are also advantages to be gained in shunning somewhat arbitrary density maxima. Even in those cases where adequate information may have been obtainable or density defined in terms of persons per acre, my research was concerned to examine those examples and types of planning which were not only necessarily plans of high density development but which *prima facie* were ideally suited to that type of development by reason of the compact system of planning adopted.

I would add of course that I recognised and said in my Report that whilst there was, it seemed to me, quite conclusive evidence already on costs and densities such as I hoped would satisfy even the most reluctant critic, more research could with advantage still be done on this particular subject.

This further work I have been engaged on since the completion of the Shipman Report and I hope Sir Patrick will accept my assurances for the present that not only does the additional evidence not call for modification of the views expressed earlier but, if anything, underlines practically every point which has been made previously—and in particular the convincing case for the adoption of densities up to about 300 persons per acre net, subject still to proper architectural and planning control, and where circumstances otherwise permit. It also underlines the fact that we are alone in this country in our present high constructional cost for flats as compared with smaller units. In due course I hope to publish this confirmatory research.

One understands very well indeed Sir Patrick's implied concern with the Report and with the enquiry to which has been devoted so much time and work in the past five years. I hope however that he will understand that this was motivated by the fact that I, together with many other architects concerned with housing, have been seeing a canvas at rather closer quarters and have become painfully aware of the dreadful impasse in which we are finding ourselves. I have seen the very great practical problems associated with attempting a solution to a large proportion of the housing problems by overspill means, and

[1] Published in the October JOURNAL.

the lack of progress which is at present being achieved in slum clearance schemes.

I conscientiously believe that it is certainly not necessary to sacrifice any proper architectural or sociological standards in the furtherance of better types of high density housing developments, and if this be the case then I would say that this surely is the only possible way to implement the policy so well expressed by the last Minister of Housing, also quoted in the Ministry of Housing *Report* of 1952, when Mr. Macmillan said: 'Many thousands of acres of land are being taken for development every year and much of this is good agricultural land. . . .' But it is essential that the amount of land taken should be kept as small as possible.

This book (*Report* 1952) deals with the amount of land needed for residential areas. 'In the past an unnecessary amount of land has too often been used for this purpose. . . . Close and compact development not only saves land; it is often more satisfactory than loose and open development.' This extract appears to put an unassailable case as distinctly and clearly as it is possible to do. Whether or not we accept Professor Stamp's arguments regarding losses of agricultural land, Sir Patrick must surely feel in his other capacity of a 'Preserver of Rural England' the need to avoid despoiling this green and pleasant land more than is absolutely essential.

What the L.C.C. have done at Wandsworth is in many ways unfortunate. Rather than tackling difficult central area slum sites as a first priority and by redevelopment beautifying these places as part of a single operation, sites of existing high amenity value have been taken and not used to maximum advantage, by both building high and to high density—the logical answer.

One has often become extremely dispirited during the last few years by a Government attitude which says, 'This Plan *must* be made to work' and we are now being told just this about Overspill. How utterly foreign this is to the British outlook and temperament and how unlikely therefore to have more success in the future than it is having now.

Before I leave shortly for overseas, I would therefore appeal to Sir Patrick, in the light of the evidence contained in the Shipman Report and of development abroad, to use the great weight of his influence and experience in pressing for the further examination, and wherever possible adoption, of a realistic policy of higher density urban planning—under proper controls and safeguards. He, I am sure, appreciates better than anyone that conditions have vastly changed in the last ten years and that many of the ideals then aspired to have been shown as unattainable for various practical but inescapable reasons. How invaluable might it not be then to have his support for properly conceived schemes of this type, and in addition where shown to be workable and in every way necessary to complementary overspill schemes—rather than the present somewhat incomprehensible opposition.

I have the honour to be, Sir,
Yours faithfully,
R. A. JENSEN [*F*]

JOURNAL COVERS

DEAR SIR,—The JOURNAL of the R.I.B.A. is such an important publication with a very wide circulation and influence on the architectural profession that I feel only important buildings should be represented on its cover.

The freak building shown on the October number is, I feel, quite out of place.

Yours faithfully,
MARTIN A. BUCKMASTER [*Hon. A*]

Book Reviews

Wren and his Place in European Architecture, by *Edouard F. Sekler.* 10 in. 217 pp. incl. illus. + 80 pls. Faber & Faber. 1956. £3 3*s.*

The Architecture of Sir Christopher Wren, by *Viktor Fürst.* 10½ in. × 8¾ in. xi + 244 pp. incl. illus. Lund Humphries. 1956. £3 3*s.*

The simultaneous publication of these two important books inevitably invites comparison of their merits and defects. In fact they are not written with the same object. Dr. Sekler's is in the nature of an essay and corresponds to only one of the three parts of Mr. Fürst's treatise, which is planned on a monumental scale in an attempt to give a final summing-up of all the material relating to Wren. The books however have two essential factors in common: the authors' continental training, and an analysis of the sources of Wren's style viewed from a specifically European background. All previous writers on Wren have been English, and the fact that he has now been subjected to the *kunsthistorisch* microscope is only a development of the trend in which European scholars have in recent years turned their attention to English architecture. Inaugurated in general terms by Drs. Pevsner and Wittkower, we can now look forward to more monographs on native architects. Wren, the greatest name in the history of English architecture, was the obvious first choice, and although most of the sources of his style have already been acknowledged, particularly by Mr. Summerson, these two books provide the first detailed presentation of the facts by means of comparative photographs and a systematic tabulation of references.

Bearing in mind their separate objectives, it can be said that Dr. Sekler's balanced, clear-minded and very readable essay is a success, whereas Mr. Fürst's complicated approach does little to clarify an already complex problem. Although the title of the book may excuse the omission of all but the briefest account of Wren's early scientific career, the conclusions in the final section could only have been reached by a study of Wren's early environment. It could be argued that the experimental nature of Wren's attitude to architectural design has already been penetratingly observed by Mr. Summerson but it is a pity that Mr. Fürst, who in every other way is tireless in his aim to be comprehensive, should have failed to present Wren's achievements within the 'new experimental philosophy' in the same detail. While there are other reasons why Mr. Fürst's book cannot be accepted as the last word, his reassessment of Wren's architecture in the light of all the original material so far gathered, in particular the Bute drawings, many of which are reproduced for the first time, is a valuable contribution to the literature on Wren. By means of a mathematical deduction in an Appendix, the author satisfies himself that no new original material in the form of drawings can be revealed which would call for a revaluation of the work of Wren. The drawings in fact form the basis of the book and the illustrations are exclusively devoted to them. His other theme, which echoes through the major part of the 1,048 footnotes inconveniently grouped at the end of the text, is provided by quotations from earlier writers. It seems to have been the author's self-imposed task to record for posterity the misconceptions of his predecessors.

The first part of Mr. Fürst's book presents Wren's architecture in chronological sequence in order to show 'a continuous process of logical development from early immaturity to accomplished mastery'. Dr. Sekler, on the other hand, sees no 'simple ascending curve', although he recognises 'a certain striving which progresses from the mere stringing together of forms learnt from books or seen in France to true composition . . . and finally in the best examples, to that integration of form which alone makes true architecture'. When dates are unknown or doubtful, Mr. Fürst maintains that a correct chronology can be established by stylistic comparison. The difficulties inherent in this method when dealing with the City Churches are obvious, since Wren frequently returned to earlier motifs. For example, the design for St. Magnus' steeple was finally used at St. Bride's, and the early scheme for St. Mary-le-Bow was later adapted for St. Magnus. Both authors pay special attention to the elevational treatment of the church façades, an aspect which has been neglected. During the period between the Great Fire and the mid-seventies Mr. Fürst sees in the relationship of elevation to plan a gradual development towards an external reflection of the internal features. This pre-supposes a three-dimensional attitude to design which, in the case of the churches, has always been denied. The separation of the parts—plans, elevations and steeples—has been the usual starting point for any discussion of the church designs, and Dr. Sekler sticks to this convention, although he believes that it is through his achievement in the field of ecclesiastical architecture that Wren has a right to a place in the ranks of European architects of more than national importance.

The neglected design for a church in Lincoln's Inn Fields is included in both books. Mr. Fürst emphasises its importance in the context of centralised plans and domical structures, and it is his belief in Wren's preoccupation with these forms that leads him to a somewhat revolutionary interpretation of the early stages in the design for St. Paul's.

It has generally been supposed that the 'First Model' for St. Paul's represented the first major proposal for a complete rebuilding of the Cathedral in the form of a rectangular choir with circular 'auditory' at the west end—a reversal in fact of the rough outline which had appeared on the plan for the City. Mr. Fürst cannot accept this interpretation, and suggests that the 'First Model' is more fragmentary than has previously been supposed. He believes that it is a small-scale forerunner of a 'Second Model', and that Wren intended the addition of a western nave to join the domed section. The assumption is based partially on the evidence of Pratt's description of 1673, which seems to suggest a much larger model, and partially on the assumption that in the 'Great Model' Wren *returned* to the idea blocked in on the City plan. In this he finds support for the theory that Wren would not have reversed the order nearest to his heart and placed the domed area in a subordinate position. This is certainly ingenious and, if it clarifies the mystery of the unusual orientation of the dome in the 'First Model', adds nothing to the evolution of St. Paul's plan, since the evidence for a reconstruction of the so-called 'Second Model' is incomplete. This one example shows how the author has read and looked with an eye unbiased by the views of previous writers.

The second section of Mr. Fürst's book is the part which can be fairly paralleled with Dr. Sekler's study. In the main the two authors agree in seeing native precedent, contemporary French architecture, Vitruvius and Italian Renaissance theoretical writers as the formative influences, the emphasis resting in favour of France in the latter and in the direction of Italy in the former. Though French influence is stressed by Dr. Sekler, he makes the point that 'one of the most striking facts about his architecture was the strength of the ties which bound him to the national tradition and the extent to which he was a product of his own country'. The fact that Mr. Fürst can find 'only one single parallel of significance' between the architecture of Wren and that of Inigo Jones seems irrelevant. Jones had established a classical idiom and though he left few executed works there was the collection of his office drawings, which Wren is known to have seen. The drawings are important in connection with the late Whitehall designs, and Wren obviously turned back to the Jones–Webb scheme with its duplication of the Banqueting House and circular court. Here Wren's debt to Jones is fairly assessed by Dr. Sekler. Neither author however cites the Royal Chapels in seeking ecclesiastical precedent for the City Churches, though the Queen's Chapel, St. James's, offers the closest single parallel between the two architects, namely the Palladian window motif at the east end, a feature used and elaborated by Wren in similar contexts. Mr. Fürst discounts Dutch influence as being negligible and minimises the 'auditory' aspects of Anglican worship. But, as Dr. Sekler says, 'the active participation of the congregation in the service was the most important requirement of the reformed liturgy', and it is unsatisfactory to ignore altogether the possibility of a relationship with contemporary Calvinist churches. Robert Hooke, Wren's friend and collaborator at the time of greatest activity on the City Churches, had visited Holland on several occasions and had Dutch books in his library. The design of St. Edmund the King and the Neurenberg House from Vingboons, illustrated by Dr. Sekler, is an outstanding example of a Dutch parallel. Even though Mr. Fürst believes that all the prototypes for Wren's work which have previously been described as 'in the Dutch manner' could have been seen by him in France, he is not over-enthusiastic about French inspiration, except in the instance of planning, and discounts a direct influence of Mansart's three domed churches in favour of Italian models. He maintains that Vitruvius, Alberti, Serlio and Palladio were the 'all-pervasive' influences, and because of that interprets Wren's attitude to design as remaining within the limits of the Renaissance—that is, an adherence to the spatial independence of the parts; and that the baroque drive towards integration was alien to him. To take one example, Wren uses the elliptical plan, the form elaborated by baroque architects north of the Alps, in only two church plans (St. Antholin and St. Benet Fink) and there rather in the nature of experiment than for its spiritual significance. Wren's attitude to finite form is expressed in his own words ' . . . of geometrical figures, the Square and the Circle are the most beautiful, next the Parallelogram and the Oval'. Dr. Sekler strives perhaps a little too hard to detect that 'search for movement and the breaking-up of the silhouette'. Though evidently apparent in Wren's later spires, viewed in the light of the author's native baroque, it is tame. Referring to the west tower of St. Paul's, inspired by Sant'Agnese and St. Peter's; the 'translation from the Italian High Baroque into the passionless English of the Royal Society is as striking here as in the semi-circular porches of the transepts, where a clear but dry evenness of intercolumniation takes the place of the rhythmic articulation of Sta. Maria della Pace'; and it is only in the 'Great Model', Dr. Sekler feels, that Wren comes 'nearest to contemporary Continental Baroque . . . yet shows that it was impossible for him to go beyond the circumstances of his environment and above all of his own essentially rational temperament'.

It is revealing to refer to the index in each book and read all the relevant passages on gothic. Neither author seems able to reconcile Wren's stated avoidance of 'Gothic rudeness' with his practical application and sympathy with gothic forms when the occasion arose. When designing Tom Tower, he stated, 'I resolved it ought to be Gothick to agree with the Founder's Worke'. Apart from the few instances when Wren built in a 'gothic' manner, the application of the tower to the City Church designs affords the most striking example of dependence on native tradition. Dr. Sekler regards this as an unconscious continuation rather than a deliberate revival. Because Wren's gothic is incapable of being reduced to stylistic comparison and logical sequence, Mr. Fürst passes over the late St. Dunstan-in-the-East and St. Michael's Cornhill (incidentally omitting to give the tower to Hawksmoor) as being designed in an 'alien mode' and therefore not expressions of the 'essential Wren'.

The most satisfactory section of Mr. Fürst's book deals with the 'spiritual qualities' of Wren's art in relation to the intellectual currents of his time. In an elaborate assessment of the ideological developments of the 17th century, the contradictions inherent in the reactions and reconciliations between the church and the state are paralleled with the irreconcilable qualities in Wren's architecture. That 'fluid' approach to a problem was the attitude of his time, in which established knowledge was being questioned. It is the disregard of this *Zeitgeist* of Wren's England which, Mr. Fürst believes, has been the cause of the misconceptions of many writers. Dr. Sekler too shows that ambiguity pervaded Wren's life and work, but reaches his conclusion by less laborious means.

Of the presentation of the two books, the more conventional layout of the Faber production is undoubtedly the pleasanter. There is a large and well-balanced selection of plates, amongst which the European sources are predominant. The selected bibliography, with biographical works arranged in chronological order and the rest correlated to the chapters, is excellent. The alphabetical list of authors in Mr. Fürst's book, including titles not directly referring to Wren, should have been arranged with more care. His other Appendices (a Catalogue *Raisonné*, a note on the drawings and an annotated abstract of Wren's library) provide the information essential to a work of reference. The new-style format of Lund Humphries' volume is less successful. Apart from the annoyance of small type arranged in double columns, the quality of the drawings has been ruined by over-enlargement, which in many places overlaps the margins and obscures the pagination.

The translated text of Dr. Sekler's book flows with hardly a trace of the original tongue. A fussy reader could point to the recurrence of the Berensonian word 'tectonic', which occurs three times on one page. By comparison there is hardly a page of Mr. Fürst's text that does not contain a mannered word or a highly contrived sentence, besides a rather loose use of architectural terms. 'Pillars' may mean

columns or pilasters, 'double aisles' refer to nave and aisles, as opposed to nave and one aisle, 'quadruple rustication' is his condensed term for rustication occurring on the four parallel vertical angles of a façade. P. H.

The Caliph of Fonthill, by *H. A. N. Brockman.* 8¾ in. 219 pp. + 10 pls. Werner Laurie. 1956. £1 1*s.*

At the age of 17 William Beckford wrote a gothic romance called *The Vision.* Near the end of his life he compiled the *Liber Veritatis,* a vitriolic enquiry into the origins of the newly-created English nobility. Neither was published, but they form convenient literary frontiers to Beckford's life. *The Vision* possesses in embryo the idea of Vathek, suggesting the imaginative mind that was to foster, among other things, the eccentric dilettante, diarist and creator of Fonthill Abbey. The *Liber Veritatis* shows an aspect of Beckford's old age: the commoner seeking a baronetcy never to be conferred; the place in society never to be granted.

It is not surprising that Fonthill Abbey has disappeared, being of that exotic ephemeral class, like Moorish tent pavilions, which rarely survived the 19th century. It would have provided an awe-inspiring problem today, even to the staunchest of protective societies or educational institutions.

Mr. Brockman has written an extremely readable book, and the publishers should be congratulated upon the good taste of their production. Although the text is rather loosely woven, it contains some notable passages, such as the visit to Fonthill of Nelson with Sir William Hamilton and Emma. Mr. Brockman and Dr. Pevsner (in his foreword) are perhaps inclined to judge Beckford with too much regard for the hypocritical moral conventions of his contemporaries. Nevertheless, this book offers a pleasant insight into the man and whets the appetite for further research. J. H.

New Horizons in Color, by *Faber Birren.* 10¼ in. × 8¼ in. vii + 200 pp. incl. pls. and other illus. + (4) coloured pls. New York: Reinhold; Lond.: Chapman and Hall [1955]. £4.

There is of course a need for a book on colour written from an architect's point of view. Mr. Birren is a likely author with more than 25 years' experience of prescribing colour for buildings, but very little in this volume seems based on his own practical knowledge.

Instead he discloses a fascinating range of scientific detail, much of it scattered and unrelated. One of his themes is that in antiquity colour was used symbolically and the reason for colour is now lost. The book in part attempts to replace the 'lost' reason with modern scientific and pseudo-psychological argument.

The author's closest contact with reality is in the industrial field, in which it is claimed that proper use of colour can do everything from increasing production to reducing accidents. Remote from reality are such statements as '. . . red causes the arms to spread away from each other. With green and blue the arms tend to approach each other in a series of jerky motions'. These actions are supposed to occur independently of the visual mechanism, i.e. blind people are susceptible.

Between such extremes Mr. Birren gives a great deal of interesting information, some of which is no doubt founded on ground nearly as shaky as the last example. The weaknesses of the book, to an architect, are its lack of practical content and its high price. JOHN BICKERDIKE [*A*]

Doctors' Offices and Clinics, medical and dental, by *Paul Hayden Kirk* and *Eugene D. Sternberg.* 11¾ in. (vii) + 218 pp. incl. pls. and pp. of illus. New York: Reinhold; Lond.: Chapman and Hall. [1955]. £4 16*s.*

This is a well-produced book, which covers American practice admirably.

Plans of a variety of clinics are reproduced together with a large number of photographs (interiors and exteriors). A glance at these will show (1) how architecture can play its part in medicine by contributing a 'cure-through-environment' and (2) how hospital administration can be simplified by reducing to a minimum the walking distances for patients and staff. (Artificially ventilated internal service rooms, so disliked in this country, considerably assist in designing a compact plan.)

American clinics differ greatly from the British in that they do not merely cater for the general practitioner but introduce a varying range of consultant services. There can be no doubt however that the custom (not common in America) of forming groups of general practitioners is on the increase in Britain, as they offer great benefits to both practitioner and patient.

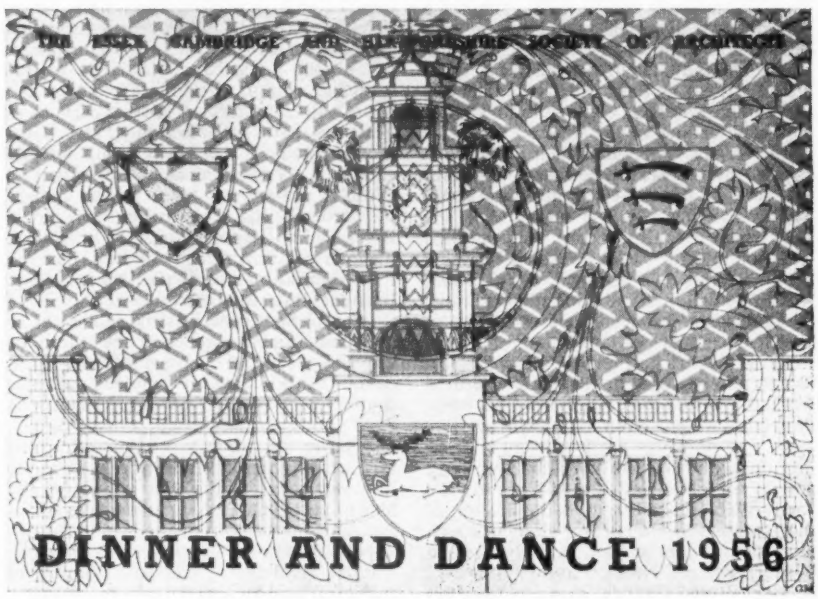
Most of the examples illustrated are of clinics for a group consisting of one or two general practitioners and a number of specialists, with various expensive diagnostic and treatment machines and a small laboratory. This type of clinic is perhaps unlikely to spread to this country, since the distance between patients and hospital is usually much smaller than in America and, again, the National Health Service encourages general practitioners to send their patients to the nearest hospital, where (*a*) the necessary diagnostic and treatment machines are installed, (*b*) laboratories exist with extensive staffs to run them, and (*c*) specialists in some 10 to 20 different subjects attend. Obviously no private group could hope to offer such a range of services.

There has been a tendency in a few larger communities where no general hospital exists to build a clinic in which general practitioners work and to which specialists will come, as necessary, to give specialised treatment. X-rays, electro-cardiographs, etc., will be installed and a suitable laboratory provided. These clinics, now somewhat experimental, will be similar to the large American clinics shown in the book, and they may well be increasingly built in this country by local authorities.

GUY ALDIS [*A*]

'Ideal Home' Book of Plans. 11¾ in. 215 pp. text illus. Odhams Press. 1956. 5*s.*

Proposed houses by seven women architects are included in the 1956 edition of this well-known annual, which altogether contains plans for forty homes in widely differing styles, shapes and sizes, some of them recently completed.



Menu cover designed by George Mathers [*A*]. See p. 42 for account of dinner

Notes and Notices

NOTICES

Second General Meeting, Tuesday 11 December 1956, at 6 p.m. The Second General Meeting of the Session 1956–57 will be held on Tuesday 11 December 1956 at 6 p.m., for the following purposes:

To read the Minutes of the Inaugural General Meeting held on 6 November 1956; formally to admit new members attending for the first time since their election.

Professor H. Myles Wright, M.A.(Cantab.) [*F*], to read a paper on 'The Motor Vehicle and Civic Design'.

(Light refreshments will be provided before the meeting.)

Session 1956–1957. Minutes I. At the Inaugural General Meeting of the Session 1956–1957 held on Tuesday 6 November 1956 at 6 p.m.

Mr. Kenneth M. B. Cross, M.A., President, in the Chair.

The meeting was attended by about 190 members and guests.

The Minutes of the Ninth General Meeting of the Session 1955–1956 held on Tuesday 16 June 1956 having been published in the JOURNAL, were taken as read, confirmed and signed as correct.

The President delivered his Inaugural Address of the Session. On the motion of Mr. W. E. A. Bull, President of the Royal Institution of Chartered Surveyors, seconded by Mr. Gontran Goulden, T.D. [*A*], President of the Architectural Association, a vote of thanks was passed to the President by acclamation and was briefly responded to.

The President, having alluded to the services of the Immediate Past President, then unveiled and formally presented to the Institute the portrait of Mr. C. H. Aslin, C.B.E. [*F*], painted by Mr. Allan Gwynne-Jones, D.S.O., A.R.A.

Mr. Aslin expressed his thanks to the Meeting. Mr. Gwynne-Jones also spoke.

The President presented the R.I.B.A. London Architecture Bronze Medal and Diploma for 1955 to Mr. Frederick Gibberd, C.B.E. [*F*], for the Passenger Handling Building, Central Terminal Area, London Airport.

Mr. Gibberd thanked the President for the honour conferred upon him.

The President also presented the replica of the Bronze Medal to Mr. J. D. Profumo, O.B.E., M.P., Parliamentary Secretary, Ministry of Transport and Civil Aviation, representing the building owners, and he and Mr. A. J. Hill, Managing Director, Messrs. Taylor Woodrow Construction Ltd., representing the contractors for the building, also spoke.

The President then presented Diplomas in connection with the R.I.B.A. Award for Distinction in Town Planning to Mr. Johnson Blackett [*F*], Professor J. Leslie Martin, M.A., Ph.D. (Vice-President), Mr. Peter F. Shepheard, A.M.T.P.I., F.I.L.A. [*A*], and Mr. L. Hugh Wilson, O.B.E., A.M.T.P.I. [*A*].

The proceedings closed at 7.25 p.m.

Architectural Competitions—Assessors' Awards. All architects who take part in architectural competitions are reminded by the Council of the R.I.B.A. that participation in a competition is a definite acceptance of the principle that the award of the assessors is final and binding upon themselves as well as upon the promoters, and that any competitor who feels that he has real ground for dissatisfaction with an assessor's award should communicate with the Secretary of the R.I.B.A.

Further, all architects, whether competitors or otherwise, are reminded that discussion or correspondence in the public or professional press which tends to criticism or disparagement of an assessor or award cannot alter the final and binding effect of the award, but may prejudice architects and the whole competition system in the opinion of the public, and is therefore highly undesirable.

The Acceptance of Pupils and Junior Assistants and the Probationership of the R.I.B.A. The Board of Architectural Education have noticed that the practice still persists of members accepting pupils or junior assistants without satisfying themselves that such pupils or junior assistants have reached the necessary standard of general education for the Probationership. Members are reminded that it is most important that they should not take boys or girls into their offices unless they possess one of the qualifications laid down.

A list of the recognised examinations can be obtained on application to the Secretary, R.I.B.A.

British Architects' Conference 1957. The British Architects' Conference 1957 will be held at Oxford from 10 to 13 July at the invitation of the Berks, Bucks and Oxon Architectural Association. Full details of the programme will be published in due course. Particulars of accommodation in hotels and colleges will be published in the January issue of the JOURNAL.

R.I.B.A. London Architecture Bronze Medal 1956. The attention of members is called to the form of nomination and conditions of the award, enclosed with this issue of the JOURNAL. The award will be made for a building built within the counties of London and Middlesex during the three years ending 31 December 1956. Any member of the Royal Institute may nominate any building for consideration by the Jury.

Nomination forms must be returned to the Secretary R.I.B.A. not later than 28 February 1957.

Cessation of Membership. Under the provisions of Bye-law 21, the following have ceased to be members of the Royal Institute: *as Fellows:* Douglas Louis Dick, Edward Clough Tasker. *As Associates:* Jillian Elizabeth Arrowsmith-Brown, Kevin Michael Leo Barry, Thomas Bernard Browne, John Albert Cowan, Rowland Crookes, Joseph Fielden Dixon, Mannie Feldman, Patrick Pearse Freyer, Ronald Alfred Greaves, Mervyn Bellwood Handley, Harold Ridley Hetherington, Donald Stewart McKerchar, Larmont Douglas Penman, Edmund Berry Power, Charles Frederick Riley, James Paget Sayers. *As Licentiates:* Andrew Douglas, Stanley Earl Edmonds, Cyril William Garton, Charles Findlater Reid, John William Scott, John Wallace.

Kalendar 1956–57: Correction. In the new edition of the Kalendar, the following error occurs:

P. 248 **Harding: Peter** [*A*], the address should read 54 Tanys Dell, **Harlow,** *not* 'Harrow'.

Associates and the Fellowship. Associates who are eligible and desirous of transferring to the Fellowship are reminded that as from 1 January 1956 all candidates for the Fellowship are required to submit to the Fellowship Examiners drawings and photographs or examples of work. Candidates may also be required to attend for an interview, which may however be dispensed with at the discretion of the Fellowship Examiners. The necessary nomination forms may be obtained from the Secretary, R.I.B.A.

Licentiates and the Fellowship. By a resolution of the Council passed on 4 April 1938 all candidates whose work is approved are required to sit for the Examination, which is the design portion of the Special Final Examination, and no candidates will be exempted from the Examination.

Note. The above resolution does not affect Licentiates of over 60 years of age applying under Section IV. Clause 4 (c) (ii) of the Supplemental Charter of 1925.

COMPETITIONS

Northern Ireland War Memorial Building. The Governors of The Council of the Northern Ireland War Memorial invite architects resident in Great Britain and Northern Ireland to submit designs for a Memorial Hall and offices, to be erected in Belfast, Northern Ireland.

Assessors: Mr. Harold A. Dod, M.A. [*F*], Mr. R. S. Wilshere, M.C., F.R.I.C.S. [*F*].

Premiums: £750, £500, £300.

Last day for submitting designs: 30 March 1957.

Last day for questions: 14 December 1956.

Conditions may be obtained from Captain W. H. Wilson, Hon Secretary, The Council of the Northern Ireland War Memorial, 73 King Street, Belfast.

Deposit: £2 2*s.* 0*d.*

An applicant for the conditions must state his registration number or the number of the receipt issued to him by the Architects' Registration Council in respect of the admission fee.

Proposed Municipal Offices and Civic Hall, Carlisle. The Corporation of the City and County Borough of Carlisle invite architects registered under the Architects (Registration) Acts and resident in Great Britain, Northern Ireland or the Republic of Ireland to submit in competition designs for a new Assembly Hall and Municipal Offices to be erected in Carlisle.

Assessor: Professor W. B. Edwards, M.A., B.Arch., M.T.P.I. [*F*].

PREMIUMS

(*a*) Preliminary Stage. Six competitors will be selected to proceed to final stage. Each will receive the sum of £300. Last day for submitting designs, Thursday 31 January 1957.

(*b*) Final Stage. The author of the design placed first will receive £1,000. Last day for submitting designs, 1 July 1957.

Conditions may be obtained from the Town Clerk, 15 Fisher Street, Carlisle.

Deposit £2 2*s.* 0*d.*

An applicant for the conditions must state his registration number or the number of the receipt issued to him by the Architects' Registration Council in respect of the admission fee.

New Technical College Buildings, Paisley, Scotland. The Governors of the above College invite architects registered under the Architects (Registration) Acts and resident in Great Britain, Northern Ireland or the Republic of Ireland to submit in competition designs for new Technical College buildings in Paisley, Scotland.

Assessor: Professor R. Gardner-Medwin, M.T.P.I. [*F*].

Premiums: £1,500, £1,000, £500.

Last day for submitting designs: Noon on 27 March 1957.

Conditions may be obtained from Messrs. J. and A. Gardner, Clerks to the Governors, 3 County Place, Paisley, Renfrewshire.

Deposit: £2.

An applicant for the conditions must state his registration number or the number of the receipt issued to him by the Architects' Registration Council in respect of the admission fee.

New National Opera House at Bennelong Point, Sydney, Australia: International Competition. The Government of the State of New South Wales invites architects who are members of their respective architectural institutes in any country in the world to submit designs in competition for a proposed National Opera House, to be erected on Bennelong Point, Sydney, Australia.

Assessors: Professor H. I. Ashworth, M.A.(Arch.), F.R.A.I.A. [*F*], Sydney; Mr. Cobden Parkes, F.R.A.I.A. [*F*], Sydney; Dr. J. L. Martin, M.A. [*F*], London; Mr. Eero Saarinen, A.I.A., Michigan, U.S.A.

Premiums: £A5,000 £A2,000, £A1,000.

Last day for despatching designs: 3 December 1956.

Every intending competitor was required to register his name and address in writing with the Secretary of the Opera House Committee not later than 15 *March* 1956.

International Competition, Geneva. The Department of Public Works for the Republic and Canton of Geneva are promoting an International Contest of Ideas for the layout of the Place des Nations and of the Approach to the Secretariat of the Palais des Nations in Geneva. Assessors: M. Jean Dutoit, Prof. Sir Patrick Abercrombie [*F*], M. Eugène Beaudouin, M. Jacques Carlu, M. Arnold Hoechel, M. Giulio Minoletti, M. Werner Moser. The Assessors will work in consultation with representatives of the European Office of the United Nations, the City of Geneva, the Chief of Police of Geneva, the Secretary General of the Department of Public Works.

Premiums: 40,000 Swiss francs to be awarded to a maximum of 5 entries; 10,000 Swiss francs for the purchase of the premiated entry.

Last day for the despatch of entries: 6 p.m., 15 April 1957.

Conditions may be obtained on application to the Department of Public Works, 6 rue de l'Hôtel de Ville, Geneva.

Deposit: 50 Swiss francs, returnable if an entry is submitted.

The conditions of this competition have been approved by the I.U.A.

International Competition, Memorial to Enrico Fermi, Chicago, U.S.A. The Secretariat of the International Union of Architects have examined the published conditions of this competition and found them to be not in accordance with the standard regulations for International Competitions (R.I.B.A. Kalendar page 840). Member nations of the I.U.A. have accordingly been warned not to participate.

COMPETITION RESULT

Ideal Home Exhibition 1957: Competition for the Design of a House.

1. Mr. David W. Oliver [*A*].
2. Mr. John Taylor [*A*] and Mr. John B. Crowther, B.Arch.(Wales) [*A*].
3. Mr. Geoffrey J. Cash [*A*].

HON. MENTIONS:—Mr. Ian A. Goldsmid, Dipl. Arch. (Northern Polytechnic) [*A*]; Mr. R. D. Ottewill, Dipl.Arch. (Northern Polytechnic) [*A*]; Mr. G. H. Grima, Dipl.Arch. (Northern Polytechnic) [*A*] and Mr. G. P. Grima, Dipl. Arch. (Northern Polytechnic) [*A*]; Mr. G. P. Hutchinson, Dip.Arch. (Dunelm) [*A*] and Mr. K. H. Murta, Dip.Arch. (Dunelm) [*A*].

BOARD OF ARCHITECTURAL EDUCATION

R.I.B.A. Examination for the Office of Building Surveyor under Local Authorities. At the R.I.B.A. Examination for the Office of Building Surveyor under Local Authorities held on 10, 11 and 12 October 1956 nine candidates presented themselves and the following were successful: Robert Anthony, Alexander Ingley, Michael F. Ryan.

ALLIED SOCIETIES

Berks, Bucks and Oxon Architectural Association. Annual Dinner. The annual dinner of the Berks, Bucks and Oxon Architectural Association was held at the Great Western Hotel, Reading, on Friday 12 October. The President of the Association, Mr. E. Steward Smith, J.P. [*F*], was in the chair and among the guests were Mr. Kenneth M. B. Cross, President R.I.B.A., Sir Russell Brain, Bart., President of the Royal College of Physicians, the Right Reverend the Lord Bishop of Reading, the Deputy Vice-Chancellor of Reading University, Professor J. M. R. Cormack, the Mayor of Reading, the Chairman of Berkshire County Council, representatives of the N.F.B.T.E. and Mr. W. R. F. Ellis, O.B.E., Deputy Secretary R.I.B.A.

The toast of 'The Town and University of Reading' was proposed by Sir Russell Brain, and the Mayor of Reading, responding, referred to the great advance in modern architecture that could be seen in the improved design of factories and schools. Professor Cormack also responded. The toast of 'The R.I.B.A. and its Allied Societies' was proposed by the Bishop of Reading. He spoke of the great debt owed by the Church to architects through the ages and looked forward to the day when there would be opportunities of repeating the glories of the past. Today, he said, architects were so limited by costs, but when the time came they would be found ready, willing and able. The President R.I.B.A., replying, said when one considered the extraordinary development of art in building throughout the ages one realised the extent to which the Church was in the vanguard of architecture. The President of the Society proposed the toast of 'The Guests' and the Chairman of Berkshire County Council and Mr. Leonard Fitt, Chairman of the Reading branch of the N.F.B.T.E., replied. The former paid tribute to the County Council architects and said buildings were being erected which were a credit to the countryside.

Bristol and Somerset Society of Architects. On 2 October, 20 members of the Bristol and Somerset Society of Architects spent a day in Le Havre and Rouen visiting new town-planning layouts, reconstruction programmes and new buildings. This is the first of a series of one-day visits to reconstruction schemes abroad, planned to be an annual event.

At Le Havre the party was met by Monsieur Poirier, Secretariat D'Etat à la Réconstruction, and two of the architects concerned with the works. Monsieur Poirier described the reconstruction in a short lecture illustrated by maps and a giant model nearly 20 ft. square. Afterwards he took the party around Le Havre in a bus, with frequent stops to enter the partially completed town hall, the nearly completed Church of St. Joseph, and other buildings in the general town-planning layout, and also to visit the low-cost housing on the hill above the town, a 1,500-place school and the new road tunnel recently constructed to improve traffic circulation.

After a sandwich lunch with Monsieur Poirier and his colleagues, the party took a train to Rouen and was there met by Monsieur Marc Alexandre who, with a party of other architects, mustered up sufficient cars to ferry the party to the new Sotteville green belt development. Here a thorough inspection was made of the flats now completed and the school which was in a very interesting stage, part being completed and part being barely started. On return to Rouen the party had time to visit the Cathedral and other buildings which had been recently reconstructed after the bombing. A hilarious meal in a typical French brasserie rounded off a thoroughly enjoyable and most stimulating and instructive day's researches.

All members of the party agreed that the value of an outing abroad was far greater than one taking just as much time to another part of England. The different approach to the same problems and different solutions gave us all food for thought. It is not a matter of their solutions being better or worse than ours, but simply different.

Devon and Cornwall Society of Architects. Annual Banquet. The annual banquet of the Devon and Cornwall Society of Architects was held at the Imperial Hotel, Torquay, on Friday 26 October. The President of the Society, Mr. C. F. J. Thurley [*F*], was in the chair, and among the guests were Mr. Kenneth M. B. Cross, President R.I.B.A., the Right Reverend the Lord Bishop of Exeter, Mr. B. R. Coney, F.R.I.C.S., F.A.I., President of the Devon and Cornwall Branch of the Royal Institution of Chartered Surveyors, Councillor Kenneth R. Bryant, Past Mayor of Torquay, and Mr. C. D. Spragg, C.B.E., Secretary R.I.B.A.

Councillor Bryant proposed the toast of 'The R.I.B.A.' and the President R.I.B.A. responded. Mr. Coney proposed the toast of 'The Devon and Cornwall Society of Architects' and Mr. Thurley replied. The toast of 'Our Guests' was proposed by Mr. Geoffrey Bazeley, M.B.E. [*F*], Vice-President of the Society, and the Bishop of Exeter replied.

Essex, Cambridge and Hertfordshire Society of Architects. Annual Dinner and Dance. The annual dinner and dance of the Essex, Cambridge and Hertfordshire Society of Architects was held at the Red Lion Hotel, Hatfield, on Friday 19 October. The President of the Society, Mr. Paul V. Mauger, M.T.P.I. [*F*], was in the chair and among the guests were Mr. Kenneth M. B. Cross, President R.I.B.A., Mr. Reginald G. Gosling, C.B.E., J.P., Chairman of the Welwyn Garden City and Hatfield Development Corporation, Sir Frederic Osborn, Hon. M.T.P.I., Editor of TOWN AND COUNTRY PLANNING and Chairman of the Executive, Town and Country Planning Association, and Mr. C. D. Spragg, C.B.E., Secretary R.I.B.A.

The toast of 'The R.I.B.A. and the Allied Societies' was proposed by Mr. Mauger and Mr. Cross replied. Mr. Clifford Culpin [*F*] proposed the toast of 'Patrons of Architecture' and Mr. Gosling replied. Mr. H. Mileson [*F*] proposed the toast of 'Our Guests' and the response was by Sir Frederic Osborn.

Hampshire and Isle of Wight Architectural Association. Annual Dinner. The annual dinner of the Hampshire and Isle of Wight Architectural Association was held at the Polygon Hotel, Southampton, on Thursday 8 November. The President, Mr. Peter McG. Corsar [*F*] was in the chair.

Among the guests were Mr. Kenneth M. B. Cross, President R.I.B.A., the Mayor of Southampton and Mr. A. L. Bailey, F.I.O.B., President of the Southampton and District Association of Building Trades Employers. The Mayor of Southampton proposed the toast of 'The R.I.B.A. and its Allied Societies' and the President R.I.B.A. responded. Mr. Corsar proposed the toast of 'The Guests' and Mr. Bailey replied.

The President presented the R.I.B.A. Architecture Bronze Medal for the four-year period ended 31 December 1954 to Mr. Leslie Wood [*F*] and to Mr. L. E. Van Moppes, representing Messrs. L. M. Van Moppes & Sons Ltd., Basingstoke, for whom the prize-winning factory was built.

Membership Lists

ELECTION: 6 NOVEMBER 1956

The following candidates for membership were elected on 6 November 1956.

AS FELLOWS (7)

Benjamin: Joshua Moses [*A* 1947], New Delhi, India.
Hancock: Thomas Herbert Hubert, Dipl.Arch. (U.C.L.), Dip.T.P.(The Polytechnic), M.T.P.I. [*A* 1938], Singapore, Malaya.
Williams: Horace [*A* 1936], Kitwe, N. Rhodesia.
Williams: Hugh Owen, Dip.Arch.(Cardiff) [*A* 1946], Cardiff.

and the following Licentiates who have passed the qualifying Examination:—

Craig: John Stone, Edinburgh.
Murphy: Lawrence Patrick.
Russell: Vernon Fletcher, Abridge.

AS ASSOCIATES (55)

Aitchison: Mareuil de Villebois, B.Arch.(Rand), Welkom, O.F.S., S. Africa.
Alexander: Wynn Garbet, B.Arch.(Wales), Neath.
Balasubramaniam: Rajanathan Sri, Dip.Arch. (Melbourne), Colombo, Ceylon.
Bamford: Derek Morton, Dip.Arch.(Nottm.), Nottingham.
Benton: Harold Frederick, Gillingham.
Brownlee: Brian Thomas, B.Arch.(C.T.).
Burchill: John George.
Cameron: Kenneth James, D.A.(Edin.), Edinburgh.
Caporn: Duncan Stanley, B.Arch.(Melbourne), Melbourne, Victoria, Australia.
Cavell: Martin Henry, Gravesend.
Collyer: James Henry, Dip.Arch.(Birm.), Birmingham.
Cooper: Kenneth, Southport.
Cubis: Garth, A.S.T.C.(Arch.), Ashfield, N.S.W., Australia.
David: Solomon Arulanandam, B.Arch.(Melbourne), Colombo, Ceylon.
Diaz: Amador, Southampton.
Eaton: Trevor Frederick, B.Arch.(C.T.), Port Elizabeth, S. Africa.
England: Maurice, Southwell.
Entwistle: Geoffrey, Dip.Arch.(Birm.), Birmingham.
Epstein: Gabriel, A.A.Dipl.
Fathers: John, Dunedin, New Zealand.
Ferguson: William, D.A.(Edin.), Edinburgh.
Gregory: David George Robert, Romford.
Griffiths: Alan David, Dip.Arch.(Birm.), Castle Bromwich.
Haley: Edward Anthony, Southampton.
Harris: Antony Walter, B.Arch.(Sydney), Armidale, N.S.W., Australia.
Hunter: Leslie Oliver, Nairobi, Kenya.
Imlach: Ian Howie Adam, Dip.Arch.(Abdn.), Singapore, Malaya.
Jack: Neil McLean, D.A.(Edin.), Edinburgh.
Johnson: Richard Norman, B.Arch.(Sydney), Chatswood, N.S.W., Australia.
Kendavel: Velayuthampillai, Dip.Arch.(Melbourne), Nugegoda, Ceylon.
Leong: Thoe Soon, B.Arch.(Sydney), Kuala Lumpur, Malaya.
Lewis: John Michael, Dip.Arch.(Birm.), Birmingham.
Lithwick: Sidney, B.Arch.(McGill), Ottawa, Ontario, Canada.
Mark: Frederick, Bristol.
Maskill: (Mrs.) Elizabeth Anne, Dip.Arch. (Sheffield), Mansfield.
Moizer: Jack David, Dip.Arch.(Birm.), Nottingham.
Mooney: Matthew Brian, B.A.(Manchester), Manchester.
Paton: Thomas, D.A.(Edin.), Dunfermline.
Patterson: Dennis, Birmingham.
Phillips: Roland Oliver, Gillingham.
Pledger: Ernest George, Wellington, New Zealand.
Purssey: Ronald Swan, Dip.Arch.(Queensland), Brisbane, Queensland, Australia.
Rennie: Arthur, Port Elizabeth, S. Africa.
Shapiro: Bernard, B.Arch.(C.T.), Cape Town, S. Africa.
Shifrin: Isidore, B.Arch.(C.T.), Sea Point, Cape, S. Africa.
Smith: Michael, B.Arch.(Rand).
Sweet: Barry Austin, B.Arch.(Auck., N.Z.), Napier, New Zealand.
Torok: Gyula Laszlo.
Uren: Reginald Norman, Dip.Arch.(Auck., N.Z.), Auckland, New Zealand.
Walford: Neil Evan, Brighton.
Walsh: Leslie Albert, Wolverhampton.
Wastell: Hubert Hedley, D.F.C., Swansea.
Willman: John Angus, Birmingham.
Wilson: Colin Renshaw, Dipl.Arch.(L'pool), Liverpool.
Wilson: Derek John, B.Arch.(Auck., N.Z.), Masterton, New Zealand.

ELECTION: 11 DECEMBER 1956

An election of candidates for membership will take place on 11 December 1956. The names and addresses of the candidates, with the names of their proposers, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Monday 3 December 1956.

The names following the applicant's address are those of his proposers.

AS FELLOWS (6)

Franklin: Herbert James, A.A.Dipl. [*A* 1931], Messrs. Whinney, Son and Austen Hall, 37 Norfolk Street, Strand, W.C.2; Latchmore Cottage, Gerrards Cross Common, Bucks. H. A. Hall, J. M. Easton, A. R. F. Anderson.

Llewelyn Davies: Richard, M.A.(Cantab.), A.A.Dipl. [*A* 1939], Nuffield Foundation, Nuffield Lodge, Regent's Park, N.W.1; Carpenters' Yard, Park Street, Tring, Herts. Dr. J. L. Martin, Philip Powell, Hidalgo Moya.

Sterrett: John Edwin [*A* 1923], 3 Ashley Place, Westminster, S.W.1; Callis Court, Ryarsh, Kent. Bertram Carter, R. B. Craze, A. H. Archard.

and the following Licentiates who are qualified under Section IV, Clause 4 (*c*) (ii) of the Supplemental Charter of 1925:

Burr: Vincent, 85 Gower Street, W.C.1; 35 Wildwood Road, N.W.11. Denis Poulton, H. V. Lobb, T. E. North.

Helbing: Vernon, Church House, Great Smith Street, Westminster, S.W.1; 10 Ingrebourne Gardens, Upminster, Essex. A. T. Scott, K. M. B. Cross, W. A. Ross.

Jones: Maurice William, 1 College Yard, Worcester; Dodfield Horn, Powick, near Worcester. G. C. Gadd, G. F. Webb, Frederick Hill.

AS ASSOCIATES (41)

The name of a school, or schools, after a candidate's name indicates the passing of a recognised course.

Ackroyd: Peter Rasmus, Dip.Arch.(The Polytechnic) (The Poly., Regent Street, London: Sch. of Arch.), 22 Bullsmoor Lane, Enfield, Middlesex. D. J. Cole, J. S. Walkden, Peter Goodridge.

Ascott: Michael George, A.A.Dipl.(Arch. Assoc.(London): Sch. of Arch.), 205A Archway Road, Highgate, N.6. Arthur Korn, R. F. Jordan, H. G. Goddard.

Ashley: Peter John, Dipl.Arch.(Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 'Lea Crest', Lincoln Road, Washingborough, Lincoln. T. E. Scott, C. G. Bath, S. F. Burley.

Avann: Ivo, Dip.Arch.(The Polytechnic) (The Poly., Regent Street, London: Sch. of Arch.), 81 Egham Crescent, Cheam, Surrey. J. S. Walkden, C. A. R. Norton, W. A. Guttridge.

Bigmore: David Geoffrey, Dipl.Arch.(Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 15 Forestdale, Southgate, N.14. T. E. Scott, S. F. Burley, Allan Johnson.

Bunker: John Vincent, Dip.Arch.(The Polytechnic) (The Poly., Regent Street, London: Sch. of Arch.), 16 Audley Road, Richmond, Surrey. J. S. Walkden and applying for nomination by the Council under Bye-law 3(*d*).

Clapp: John Drummond, Dipl.Arch.(Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 36 Trapps Hill, Loughton, Essex. R. O. Foster, R. C. Foster, Harold Mileson.

Clowes: Jack, Dip.Arch.(Sheffield) (Univ. of Sheffield, Dept. of Arch.), 'Crescent', Sandon Road, Meir, Stoke-on-Trent, Staffs. Prof. Stephen Welsh, H. B. Leighton and applying for nomination by the Council under Bye-law 3(*d*).

Collier: John, Dip.Arch.(The Polytechnic) (The Poly., Regent Street, London: Sch. of Arch.), 13 The Priory, Blackheath, S.E.3. R. Vaughan, and applying for nomination by the Council under Bye-law 3(*d*).

Dawson: Alexander John, D.A.(Dundee) (Dundee Coll. of Art: Sch. of Arch.), 14 Airlie Crescent, Arbroath, Angus. John Needham, W. S. Gauldie, Prof. Basil Spence.

Duncan: Thomas, D.A.(Dundee) (Dundee Coll. of Art: Sch. of Arch.), 71 Muirton Place, Perth, Scotland. John Needham, T. H. Thoms, G. C. Young.

Fawdon: Keith William, Dip.Arch.(Dunelm) (King's Coll. (Univ. of Durham), Newcastle upon Tyne, Sch. of Arch.), 319 Stanhope Road, South Shields, Co. Durham. S. W. Milburn, Prof. W. B. Edwards, J. H. Napper.

Gilroy: Norman Thomas, Dipl.Arch.(Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 48 Upper Montague Street, W.1. T. E. Scott, H. H. Powell, S. F. Burley.

Gough: Anthony Darley, A.A.Dipl. (Arch. Assoc. (London): Sch. of Arch.), 45 Granada Road, Southsea, Hants. Elie Mayorcas, Bryan Westwood, Arthur Korn.

Haggart: James Carr, D.A. (Dundee) (Dundee Coll. of Art: Sch. of Arch.), 'Rosslyn', Stanley, Perthshire. John Needham, Donald Ross, G. C. Young.

Hatch: David George, D.A.(Edin.) (Edinburgh Coll. of Art: Sch. of Arch.), 53 Southport Street, Belfast, Northern Ireland. Applying for nomination by the Council under Bye-law 3(*d*).

Hatcher: David Anthony, A.A.Dipl.(Arch. Assoc.(London): Sch. of Arch.), Tudor Cottage, 214 Rushmere Road, Ipswich, Suffolk. Elie Mayorcas, Arthur Korn, Bryan Westwood.

Heward: Alexander, D.A.(Edin.) (Edinburgh Coll. of Art: Sch. of Arch.), 49 Grainger Park Road, Newcastle upon Tyne 4. Prof. Basil Spence, J. R. McKay, T. W. Marwick.

Howard: Anthony Peter, Dipl.Arch.(Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 4 Fordwich Road, Welwyn Garden City, Herts. T. E. Scott, J. Holman, C. G. Bath.

Ingoldsby: Colin Joseph, B.Arch.(N.U.I. Dublin) (Univ. Coll., Dublin, Ireland: Sch. of Arch.), Bank of Ireland House, Clonmel, Co. Tipperary. Prof. J. V. Downes, J. J. Robinson, W. A. Maguire.

John: Edward William Warne, Dip.Arch. (Cardiff) (Welsh Sch. of Arch.: The Tech. Coll., Cardiff), 35 Cornerswell Road, Penarth, Glam. Lewis John, Trevor Hill, L. R. Gower.

Jones: David Morton, D.A.(Dundee) (Dundee Coll. of Art: Sch. of Arch.), 1 Armoy Gardens, Rathcoole, Whitehouse, nr. Belfast, N. Ireland. John Needham, T. H. Thoms, Ninian Johnston.

Kear: Kenneth Leonard, Dipl.Arch.(Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 50 Brent Road, Shooters Hill, S.E.18. T. E. Scott, C. G. Bath, S. F. Burley.

Kennedy: George Raphael Michael, D.A.(Edin.) (Edinburgh Coll. of Art: Sch. of Arch.), 'Launceston', 125 Rickerscote Road, Stafford. Prof. R. H. Matthew, A. C. H. Stillman and applying for nomination by the Council under Bye-law 3(*d*).

Kirtley: William Donald, B.Arch.(Dunelm) (King's Coll. (Univ. of Durham), Newcastle upon Tyne, Sch. of Arch.), 42 Danville Road, Fulwell, Sunderland, Co. Durham. S. W. Milburn, Prof. W. B. Edwards, F. Fielden.

Knight: Denis Stanley, A.A.Dipl.(Arch.Assoc. (London): Sch. of Arch.), 50 Prince of Wales Drive, Battersea Park, S.W.11. M. Pattrick, R. F. Jordan, Arthur Korn.

McMorrow: John Henry Malcolm, A.A.Dipl. (Arch.Assoc. (London): Sch. of Arch.), c/o County Architect's Dept., County Hall, Hertford. Arthur Korn, C. H. Aslin, and applying for nomination by the Council under Bye-law 3(*d*).

Meyersohn: E. Maurice, B.Arch.(Rand) (Passed a qualifying Exam. approved by the R.A.I.A.), 1 Vanbrugh Terrace, Blackheath, S.E.3. R. Vaughan and applying for nomination by the Council under Bye-law 3(*d*).

Morrow: Alexander George Hamilton, Dipl. Arch.(Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), Dufferin Place, Killyleagh, Co. Down. N. Ireland. T. E. Scott, C. G. Bath, S. F. Burley.

Nicholson: Robert Nicholas, B.Arch.(Dunelm), M.Eng.(L'pool), A.M.I.C.E. (King's Coll. (Univ. of Durham) Newcastle upon Tyne, Sch. of Arch.), Ridge House, Camerton Road, Seaton, Workington, Cumberland. Prof. W. B. Edwards, Bruce Allsopp, F. Fielden.

Norris: John, Dipl.Arch.(Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 'Charlbury', Baylis' Caravan Site, Woodhouse Lane, Quorn, nr. Loughborough. T. E. Scott, C. G. Bath, S. F. Burley.

Ogden: Michael John Hamp, Dip.Arch.(The Polytechnic) (The Poly., Regent Street, London: Sch. of Arch.), 15 Fitzroy Square, W.1. Stanley Hamp, Prof. Basil Spence, D. J. Cole.

Oxley: Kenneth Robert, B.Arch.(Dunelm) (King's Coll. (Univ. of Durham) Newcastle upon Tyne, Sch. of Arch.), 33 Bracken Road, Darlington, Co. Durham. Prof. W. B. Edwards, Bruce Allsopp, J. H. Napper.

Penney: Allen (Arch.Assoc.(London): Sch. of Arch.), Brae House, Perrymead, Bath, Somerset. Arthur Korn, D. L. Bridgwater, A. C. Townsend.

Rhind: Robert Thomas, Dip.Arch.(Dunelm) (King's Coll. (Univ. of Durham) Newcastle upon Tyne, Sch. of Arch.), 47 Church Street, Berwick-upon-Tweed, Northumberland. Prof. W. B. Edwards, J. H. Napper, Bruce Allsopp.

Robson: Dennis William, B.Arch.(Dunelm) (King's Coll. (Univ. of Durham) Newcastle upon Tyne, Sch. of Arch.), 90 Queens Road, Blackhill, Consett, Co. Durham. Prof. W. B. Edwards, Bruce Allsopp, J. H. Napper.

Saunders: Peter, B.A.(Cantab.), A.A.Dipl. (Arch.Assoc. (London): Sch. of Arch.), 24 Bywater Street, S.W.3. Arthur Korn and applying for nomination by the Council under Bye-law 3(*d*).

Smart: Robert Mackenzie, Dipl.Arch.(Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 22 Winton Avenue, New Southgate, N.11. Prof. Basil Spence, T. E. Scott, S. F. Burley.

Swinney: Thomas Michael, B.Arch.(Dunelm) (King's Coll. (Univ. of Durham) Newcastle upon Tyne, Sch. of Arch.), Castle View, de Merley Road, Morpeth, Northumberland. Prof. W. B. Edwards, Bruce Allsopp, F. Fielden.

Wilkinson: Denis Roland, Dip.Arch.(Dunelm) (King's Coll. (Univ. of Durham) Newcastle upon Tyne, Sch. of Arch.), 6 Priory Grove, St. Gabriel's, Sunderland, Co. Durham. Prof. W. B. Edwards, Bruce Allsopp, F. Fielden.

Wilson: Donald Rule, B.Arch.(Dunelm) (King's Coll.(Univ. of Durham) Newcastle upon Tyne, Sch. of Arch.), 23 Lyndhurst Avenue, Jesmond, Newcastle upon Tyne. Prof. W. B. Edwards, J. H. Napper, Bruce Allsopp.

AS LICENTIATES (2)

Haslam: John Dennis, Messrs. J. Haslam & Sons, Ryton Chambers, Newcastle Avenue, Worksop, Notts.; 'Treetops', The Baulk, Worksop. H. A. Hickson, H. A. Johnson, E. W. Roberts.

Haslam: William Herbert Neville, Messrs. J. Haslam & Sons, Ryton Chambers, Newcastle Avenue, Worksop, Notts.; Spinney House, Blyth Road, Worksop. H. A. Hickson, H. A. Johnson, E. W. Roberts.

ELECTION: 5 MARCH 1957

An election of candidates for membership will take place on 5 March 1957. The names and addresses of the overseas candidates, with the names of their proposers, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Friday 15 February 1957.

The names following the applicant's address are those of his proposers.

AS FELLOWS (2)

Howie: Francis Morrison, Dip.Arch.(Abdn.) [*A* 1947], Hongkong Bank Chambers, Singapore, Malaya; 14 Ewart Park, Singapore. C. Y. Koh, W. I. Watson, C. N. Nettleton.

Mills: David Butler, O.B.E. [*A* 1938], Public Works Department, Box 662, Nairobi, Kenya; Limuru Road, Muthaiga, Nairobi. A. L. Spencer, L. G. Jackson, E. D. Hill.

AS ASSOCIATES (4)

Adams: Lieut.-Col. Clarence Bavin, M.B.E. (Special Final), 1–3 Bechuana House, Salisbury, S. Rhodesia. W. D. Cathcart, C. A. Knight, C. E. Robson.

Glaister: Ronald McLagan, D.A.(Glas.) (Glasgow Sch. of Arch.), 623 Sherbourne Street, Toronto, Ontario, Canada. Prof. W. J. Smith, John Steel, J. M. Cowie.

Leach: Eric (Passed a qualifying Exam. approved by the R.A.I.A.), 7 Saunders Street, Mosman Park, Western Australia. W. T. Leighton, A. J. Hobbs, K. C. Duncan.

Trundle: (Mrs.) Ailsa Merle (Passed a qualifying Exam. approved by the R.A.I.A.), c/o Messrs. R. S. Demaine, Russell, Trundle, Armstrong & Orton, 401 Collins Street, Melbourne C.1, Victoria, Australia. R. S. Demaine, Miss Ellison Harvie, E. K. Mackay.

Notes from the Minutes of the Council

MEETING HELD 9 OCTOBER 1956

Appointments

(*a*) *Central Panels Committee: C.P.R.E.:* Tom Mellor [*A*] as one of the five R.I.B.A. representatives in place of Stanley C. Ramsey [*F*].

(*b*) *Codes of Practice Committees:* (1) *Codes of Practice Committee for Buildings*, John Stillman [*A*] in place of Edward Mills [*F*]. (2) *Institution of Gas Engineers: Drafting Panels for Codes of Practice for Gas Appliances*, Stanley Heaps [*F*]. (3) *Code of Practice for Oil Firing Installations and Conversions*, John Pinckheard [*A*], John R. Harris [*A*]. (4) *Code of Practice for Tile and Slab Flooring*, John R. Harris [*A*]. (5) *Revision of Code of Practice* 231: 1951: *Painting*, F. Evan Jones [*F*] and J. Anthony Leathart [*A*] in place of J. Murray Easton [*F*] and C. J. Epril [*F*] (resigned).

(*c*) *B.S.I. Committees*

PVC/3/1	Putty O. C. F. Carey [*A*].
USM/2	Units, Symbols and Abbreviations D. W. Aldred [*F*]
M/53	Kitchen Tables and Stools for School Catering G. Newell [*A*] and C. E. D. Wooster [*A*].
M/54	Trucks and Trolleys for School Catering G. Newell [*A*] and C. E. D. Wooster [*A*].
GLC/1	Glass and Glazing G. A. C. Lacoste [*F*].
ASB/–/1	Steering Committee for International Work on Asbestos Cement Products J. R. Harris [*A*].
ACM/2	Architectural Acoustics and Sound Insulation H. Creighton [*A*].

B/90 Silicone Based Water Repellents for Masonry F. H. Heaven [*A*].

(*d*) *Farm Buildings Conference: Oxford* 24/27 *September* 1956. *R.I.B.A. Representative*, R. Llewellyn Davies [*A*].

(*e*) *R.I.B.A. Architecture Bronze Medal: The Wessex Federal Society of Architects: R.I.B.A. Representative to serve on Jury to consider Award*, C. F. J. Thurley, [*F*] President, Devon and Cornwall Society of Architects.

(*f*) *British Waterworks Association: Standing Committee on Water Regulations: R.I.B.A. Representatives*, Richard Henniker [*F*] and A. H. Ley [*F*].

(*g*) *Royal Society of Arts Conference on 'Perils and Prospects in Town and Country'; 31 October* 1956*; R.I.B.A. Delegates*, The Hon. Lionel Brett [*F*], Sir Hugh Casson [*F*], and Thomas E. Scott [*F*].

Completion of Premises Fund. The Honorary Treasurer reported that a donation of ten guineas to the Completion of Premises fund had been received from the County Architects' Society. Members of Council expressed their appreciation.

Exhibitions. On the recommendation of the Public Relations Committee, approval was given to the R.I.B.A. participating in the fifth Factory Equipment Exhibition in the autumn of 1957, by preparing an exhibition stand dealing with industrial and office buildings.

British Architects' Conference. It was noted that the various matters discussed at the British Architects' Conference at Norwich in 1956 had been analysed and points for further consideration referred to the committees concerned.

With regard to the British Architects' Conference at Oxford in 1957, approval was given to a recommendation that the subject should be a general review of maintenance considerations. It was noted that this would to some extent duplicate the Symposium on 'The Effect of Maintenance Considerations on Design' proposed for 17 January 1956 and it was accordingly agreed to cancel the symposium.

Sessional Papers. It was agreed to invite Mr. Ely Jacques Kahn (U.S.A.) to give a paper on 'American Office Practice' during his visit to England in June 1957.

Symposium on 'Designing for Children in High Density Housing'. The Council approved a joint recommendation by the Town and Country Planning and Housing Committee and the Public Relations Committee that a symposium should be held on 'Designing for Children in High Density Housing' early in 1957.

Cost Research Committee. Following upon discussions between R.I.B.A. representatives and the Cost Research Panel set up by the Royal Institution of Chartered Surveyors, it was agreed to set up a Cost Research Committee at the R.I.B.A. and to make arrangements for liaison with the R.I.C.S. Panel.

Building Research Programme 1957. It was reported that the Science Committee had examined the draft Building Research Programme for 1957 drawn up by the Department for Scientific and Industrial Research, and on behalf of the Institute had made a number of comments and suggestions for additional lines of research.

Transfer and Delegation of Powers to Metropolitan Borough Councils. Certain proposals put forward by the London County Council for the delegation of planning powers to Metropolitan Borough Councils were referred to the Science and Town and Country Planning and Housing Committees for consideration. On the recommendation of those Committees a reply was sent to the effect that the R.I.B.A. would regard any general extension of delegated powers as not in the public interest, since it would multiply the number of authorities to be dealt with and complicate the channels of communication and appeal. On one particular point—the proposal to delegate powers to make orders for the preservation of trees and woodlands—it was agreed to reply that on this subject, which may be of special concern locally, there would be no objection to the delegation of power to each Metropolitan Borough Council provided that the advice of a person experienced in landscape architecture was available and that he was in a position to report direct to the appropriate committee of the Borough Council and not through an intermediate officer.

Part-time Lectures for Local Authorities by Professional Men. A report from Mr. J. Kenneth Hicks [*F*], the R.I.B.A. representative on the committee convened by the General Council of the Bar and the Law Society, was considered. Approval was given to the suggestion that the committee should now be placed on a permanent basis: their purpose being to negotiate rates of remuneration for part-time lectures given by professional men under arrangements made by local authorities. The appointment of Mr. Hicks as the R.I.B.A. representative was confirmed.

Proposed National Theatre Museum. A report was considered from Mr. Richard Leacroft [*A*], the R.I.B.A. representative on a committee convened to consider the setting up of a National Theatre Museum. Approval was given to the recommendation that a British Theatre Museum Trust be set up and that the R.I.B.A. should nominate one of nine trustees. It was agreed to approve the suggestion and to nominate Mr. Leacroft as the R.I.B.A. trustee.

Employment of Architects on the Salaried Staffs of Building Contractors. The Council considered a joint report from the Practice and Salaried and Official Architects' Committees. This report dealt with two aspects of the employment of architects in salaried capacities by building contractors. In regard to what might be termed normal employment on a salaried basis, or as a consultant, the Committees recommended that no new provision should be added to the Codes of Professional Conduct to forbid architects joining the salaried staffs of contractors. They drew attention to the provisions of Clauses 4 (*a*) and (*c*) of the R.I.B.A. Code of Professional Conduct and Principle VIII of the A.R.C.U.K. Code. In regard to the employment of architects as part of a speculative team to supply 'all-in' or comprehensive services, the Committees suggested that further study of the situation would be advisable before any decision was taken. The Council gave approval to the Committees' recommendation and to their continuing the study as suggested.

Public Relations Activities. The Council considered and gave approval to a report from the Public Relations Committee covering proposals for increased activities on behalf of the profession. The programme, on a three-year basis, will cover increased participation in exhibitions, including international exhibitions, the production of pamphlets explaining the activities of the profession, the sponsoring of educational films, further activity in the fields of broadcasting and television and the establishment of a lectureship through which a lecture should be given annually by a distinguished lecturer.

Membership. The following members were elected: as Fellows 25; as Associates 51; as Licentiates 47.

Students. 113 Probationers were elected as Students.

Applications for Election. Applications for election were approved as follows: *Election* 6 *November* 1956: as Fellows 4; as Associates 33. *Election* 5 *February* 1957 (*Overseas Candidates*): as Associates 16.

Applications for Reinstatement. The following applications were approved: as Associates: Roy Thomson Christy, Raymond Clare Nowland, Albert Edwin Smith. As Licentiates: Alfred George Salisbury.

Resignations. The following resignations were accepted with regret: John Augustine C. Hare [*A*] Mrs. Pauline Sobey [*A*], William John Almond [*L*], James Stirling Boyd [*L*], Robert James Collins [*L*], Edwin Milburn [*L*], George Arthur Steane [*L*], Arthur Ernest King [*Retd. L*].

Applications for Transfer to Retired Members' Class under Bye-law 15. The following applications were approved: as Retired Fellows: Paul Dangerfield, William Curtis Green, R.A., Harold Saunderson Hall, Henry Arthur Porter; as Retired Associates: Philip Henry Cundall, Frank Hearne, Hugh Alexander Ross, Ulrich Alexander Sherwin, Francis Howard Hippisley Webb; as Retired Licentiates: Norman Jordan, Harold Leonard Egerton Tranter.

Obituary. The Secretary reported with regret the death of the following members: Dr. Virgil Borbiro [*Hon. Corr. Member*], Josef Hoffmann [*Hon. Corr. Member*], Ernest John Russell [*Hon. Corr. Member*], (Past President of the American Institute of Architects), Henry William Binns [*F*], Professor Lionel Bailey Budden, M.A.(L'pool) [*F*], Horace Charles Couldrick [*F*], Edwyn Emrys Edmunds [*F*], Hugh Ernest Folkes [*F*], Harry Thomas Goodwin [*F*], Charles Dearman Hawley [*F*], Norman Jones [*F*], Gavin Lennox [*F*], George Pawson Stainsby [*F*], Edgar Allan Davey Tanner [*F*], George Pemberton Allen [*Retd. F*], William Lee Clarke [*Retd. F*], Robert Kitching Ellison [*Retd. F*], Thomas Rutter Eltringham, M.V.O., O.B.E. [*Retd. F*], Albert John Toomer [*Retd. F*], Thomas Tyrwhitt [*Retd. F*], Professor Arthur Fred Wickenden [*Retd. F*], Edward Hayley Beale [*A*], Noel William Hunter [*A*], Kenneth Thomson Lindsay [*A*], Reginald Latham Luke [*A*], James Murray [*A*], Philip Evans Palmer [*A*], Harold William Pritchard [*A*], Michael George Francis Ventris, O.B.E. [*A*], Ernest Willson [*A*], Thomas Wallis Gordon [*Retd. A*], Ernest Alexander Young [*Retd. A*], Francis Thomas Blennerhassett, O.B.E. [*L*], Harold Thomas Burgess [*L*], Charles Vincent Cable [*L*], William Allan Dew [*L*], Alfred Stephen George [*L*], Adam Legge Johnston [*L*], Alexander Stewart McGregor [*L*], Izmay Massey [*L*], Bertram Robert Nicol [*L*], Arthur William Whydale [*L*], Harry Heathman [*Retd. L*], William Pendleton [*Retd. L*], Harold Overall Samson [*Retd. L*], Stanley Selwyn [*Retd. L*], Herbert Thompson Sykes [*Retd. L*], Joseph Sykes [*Retd. L*].

By resolution of the Council the sympathy and condolences of the Royal Institute have been conveyed to their relatives.

Obituaries

James Murray [*A*] died, together with his wife and little son, in the air disaster at Kano, Northern Nigeria, on 24 June. Mr. Murray was Resident Architect to the University College Hospital, Ibadan. He went out to Nigeria in 1949 to work for P.W.D. Department, Lagos, and prepared the drawings for the House of Representatives.

Mr. Thomas Scott, O.B.E. [*F*], Chief Architect, P.W.D., Lagos, until his retirement in 1954, and subsequently London P.W.D. representative in connection with the University College Hospital, writes: 'James Murray was a typical, lovable Scot of fine perception, well endowed with common sense. His profession was his pride, his work and draughtsmanship his delight. A modernist in outlook, but by no means hidebound, he had the gift of quickly absorbing the fundamentals of Nigerian tropical design and building methods. . . . Many mourn the death of Mr. and Mrs. Murray and their child. They lived on the hospital site from the days when it was bush. They saw it grow into a busy community and entered freely into the social life. . . . Let the hospital be remembered as a memorial to their endeavours.'

Norman Toller Myers [*F*] died on 23 June, aged 75.

Mr. Myers practised in London and Cambridge and was a Past Chairman of the Cambridge Chapter of the Essex, Cambridge and Hertfordshire Society of Architects. Among his works were Stockport Grammar School (with the late R. H. Spalding [*F*]), numerous Baptist and other chapels, and the layout and design of all the houses in Barrow Road, Cambridge. He was also surveyor to the Diocese of Ely.

Mr. Laurence M. Gotch [*F*] writes: 'He was conscientious and accurate in his work, more suited to commissions of a moderate size than any large works. Barrow Road, Cambridge, where he lived, was built between 1925 and 1940 and consists of some 60 pleasant houses. It is to my mind a replica of his own personality.'

William Douglas Owen [*L*] died on 15 May, aged 58.

Mr. Owen was County Land Agent for Pembrokeshire. He joined the County Council staff 42 years ago and was for several years Assistant County Architect. He was appointed Land Agent shortly after the last war. The works with which he was more particularly concerned were schools and smallholdings.

He was a keen golfer and bowls player until ill-health intervened, playing bowls for the County Association. In his younger days he played cricket for Haverfordwest. He was one of the senior members of the Cambrian Lodge of Freemasons.

Charles Greenwood, O.B.E., M.I.C.E., M.T.P.I. [*Retd. L*], died on 31 July 1955.

Mr. Greenwood had been City Engineer and Surveyor, Chester. As such the chief works for which he was responsible were the Blacon School and housing estate, the public library, the Grammar School, the suspension bridge and Chester's redevelopment plan.

John Paley Parrish [*L*] died on 26 December 1955, aged 77.

Mr. Parrish practised from Sale, beginning in 1913, and built a large number of works, warehouses and mills at Salford, Liverpool, Stockport, and more particularly in Trafford Park and the greater Manchester area.

Sale was his native town and he performed much public service for it. He served on its Council for 33 years, was Mayor in 1941–42 and in his last year was made an Honorary Freeman of the Borough.

He was a Founder-President of the Sale Rotary Club and in Freemasonry was a Past Provincial Grand Deacon of the Province of Lancashire (Eastern Division).

Harold Samuel Haughton [*L*] died on 10 May, aged 72.

Mr. Haughton practised in Plymouth and Exeter, carrying on the firm founded by his father, S. W. Haughton. Before 1939 Mr. Haughton carried out a considerable amount of housing and commercial work, as well as Plympton Secondary School for the Devon County Council. Most of the commercial work, which was in Plymouth, was destroyed in the war. Since then the firm have practised as quantity surveyors only.

Mr. Haughton served in the Royal Engineers in the First World War, and in the Home Guard in the Second.

C. Lyn Howell [*A*] died on 17 May, aged 42.

Mr. Howell practised in Fredericton, New Brunswick, Canada, first as assistant to, then in partnership with, Mr. Neil Stewart [*A*], President of the Architects' Association of New Brunswick. In January of this year he set up in practice alone, and had been appointed architect for the new Lord Beaverbrook art gallery, but unfortunately died before working drawings were ready for tender.

Thomas McKay Galbraith [*F*] died in May, aged 51.

Mr. Galbraith joined the late J. Percy Clark in 1922 in the firm of Scott & Clark, which is now carried on by Mr. J. Forbes Clark [*A*]. Mr. Galbraith's principal works consisted of licensed premises for the leading Midland breweries, since the firm specialise in this type of work. In addition they have carried out a number of housing estates, namely for Willenhall, Darlaston and Coseley U.D.C.'s, and erected the Dudley Wood School at Netherton (won in open competition in 1929).

Mr. Galbraith was a first class golfer, a cricket enthusiast and a good violinist. Mr. J. Forbes Clark says of his late partner: 'Tom Galbraith's qualities as an architect were his extreme practical approach and great conscientiousness. . . . I have lost a true friend and partner.'

Donald John Grant Plumley [*F*] died on 12 April, aged 68.

Mr. Plumley was educated at Warminster Grammar School and studied at the Merchant Venturers' Technical College and at Bristol University. He served his articles with Mr. F. Bligh Bond [*F*] of Bristol.

During the First World War he held various posts as assistant, including one at the Admiralty. Between 1918 and 1925 he was for a time Chief Architectural Assistant with Messrs. F. W. Woolworth & Co. Ltd.; he also at one period worked as assistant on designs for the premises of Messrs. J. Lyons & Co. Ltd. in the Strand and in Coventry Street and for the Cumberland Hotel. Between 1925 and 1931 he spent periods in New Zealand and Canada. In New Zealand, practising on his own account, he designed what was then the largest music store in the Dominion, and in Canada, in an assistant capacity, he worked on the designs for the Marine Building, Vancouver, the Canadian Bank of Commerce and the Sun Life Building in Toronto. In 1931 he returned to England and worked first on the staff of London Passenger Transport Board on the design of new Underground stations, then for the London County Council. For some years he was in semi-retirement owing to ill-health, but subsequently practised first in Tonbridge, then in Wellington, Somerset.

Captain Denis Walford Locke [*L*] died on 10 April, aged 64.

Captain Locke served his articles with his father, the late F. Walford Locke [*L*] and later became a partner in the firm, which had existed since 1847 and which, known in Captain Locke's young days as Rowell, Locke & Son, is now Locke, Son & Newcombe.

Captain Locke was mainly a domestic architect, but among his larger works was the administration block of the Royal Western Counties Mental Institution at Starcross, the Cockington Estate at Torquay, Lloyds Bank premises in Newton Abbott, and one or two factories. His father built St. Paul's Church, Newton Abbot, and Captain Locke designed the pulpit and, it is believed, the screen. Captain Locke's father, and himself when young, also carried out most of the work on a number of other churches in the district.

David Gordon McIntosh [*F*] died on 19 March, aged 82. Mr. E. Forster [*F*], Mr. McIntosh's son-in-law, gives us the following information:

'He served his articles in Worcester and was for over thirty years a partner in the Liverpool firm of Woolfall & Eccles, where with his partner T. E. Eccles he was responsible for the erection of a large number of Midland Bank premises scattered over the north-west of England and North Wales. The practice was a general one but the banks became a major part of it, particularly during the years 1919 to 1930. He served for some years on the Council of the Liverpool Architectural Society and took a keen interest in the Council for the Preservation of Rural England. He was extremely well versed in the history and archaeology of Cheshire and the northern counties and later, on his retirement to Sussex, became an active member of the Sussex Archaeological Society.'

John Percival Hall [*A*] died on 26 August 1955, aged only 43.

Mr. Hall suffered all his life from the effects of poliomyelitis contracted in his childhood, but despite his physical handicaps he studied at the Welsh School of Architecture, the Technical College, Cardiff, was elected Associate in 1937 and spent ten years in the office of the Glamorgan County Architect, where he was much admired for his courage and cheerfulness.

Kenneth Easton, A.M.T.P.I. [*A*], died on 9 November 1955, aged only 43.

Mr. Easton qualified at Durham University and afterwards spent a year there, from 1935 to 1936, on a postgraduate studentship as Assistant Lecturer and Studio Master. In 1937 Mr. Easton was Hunt Bursar.

He subsequently went as architectural assistant first to the Royal Ordnance Factory at Woolwich, then to the Miners' Welfare Commission, to which he returned after his war service with the Royal Engineers in Canada, Egypt, Libya, Jordan, Syria, Italy and Greece. Much of his post-war work with the Commission was on standardised building components. In 1949 he joined the staff of the London County Council, working in their Royal Festival Hall Section, General Division, Housing Division and Schools Division. From

1946 to 1955 he was also a member of the Town Planning Staff of the School of Architecture, Regent Street Polytechnic.

Charles Paget Wade [*A*] died on 28 June, aged 73.

Although Mr. Wade was in his early days assistant to Sir Edwin Lutyens when he was planning Hampstead Garden Suburb, he never practised regularly as an architect. He turned instead to craft work in the style of the old English craftsmen, whom he greatly admired, and acquired no little skill in using the old tools. He filled his house, Snowshill Manor, near Broadway, Worcestershire, with *objets d'art* which he collected from many lands, restoring those which were dilapidated. He also designed the terraced gardens in which the house stands and which contain a model fishing village, complete with harbour and boats. In 1951 he gave the Manor to the National Trust and went to live in the West Indies. He died while on a visit to England.

THE TIMES described him as 'a dilettante in the 18th century sense of the term'.

Victor Edward Croll [*L*] died on 3 May, aged 66.

Mr. Croll spent the first 25 years of his career with Messrs. Trollope & Colls Ltd., where he worked on City offices and banks and various premises in the West End and also on the interior decoration of Cunard and other Line ships and on the construction of a 'dockers' town' at Tilbury. During the war he was attached to the Air Ministry and after the war was engaged on the design of sets for film production companies.

Mr. Croll had been a Freemason for the past 35 years and was a member of the Garden City Lodge and the Garden City Chapter.

James Moore, A.M.I.C.E. [*L*], died on 23 December 1955, aged 74.

Mr. Moore studied at the then Central Technical College, London, now the Imperial College of Science. He began practice in Dublin in 1906 and became a Licentiate in 1925. Among his works were the Royal Bank of Ireland in Dalkey, Co. Dublin, the Independent Newspapers Ltd. building and several factories in Dublin, housing schemes and stands at Lansdowne Road Irish Rugby Union Football Club and at Baldoyle race-course.

In his earlier years Mr. Moore was especially interested in town planning and had recently been working on airducting.

Joseph Anderson Allan [*F*] died on 15 April, aged 74.

Mr. Allan was a partner in the firm of J. A. O. Allan, Ross and Allan. An obituary notice of Mr. J. A. Ogg Allan was published in the JOURNAL for December 1955. The principal works with which Mr. Allan was concerned were Aberdeen Training College, schools for the City of Aberdeen, Peterhead Academy, hospitals for the Eastern and North-Eastern Regional Hospital Boards and St. Thomas's Church, Aboyne.

Thomas Graveley Angell [*Retd. L*] died on 27 May, aged 76.

As a partner in the firm of Imrie & Angell (with Mr. G. Blair Imrie and Mr. H. Scott-Willey [*F*]), Mr. Angell practised from 2 Mitre Court Chambers, London, E.C.4. The firm was responsible for the Clarehill and Claremont estate, Esher, Surrey, for the layout of a sunken garden and rose garden at Eton College, for workers' bungalows, school, hospital, etc., in Trinidad for Trinidad Leaseholds Ltd., and for the cloisters at Woking Crematorium. It was here that Mr. Angell was cremated and his ashes were scattered.

Lloyd Foster Ward [*A*] died on 30 March, aged 78.

Mr. Ward trained at the Birmingham School of Art and was articled to Mr. Owen Ward. He was recently elected a Life Member of the Birmingham and Five Counties Architectural Association.

He began practice in 1910 and worked mostly on housing and factories. He was architect to the Rugeley U.D.C. and the Kidderminster R.D.C., for whom he carried out many housing schemes. His factory work included premises for the Lockheed Hydraulic Brake Co. Ltd., Coventry; Climax Ltd.; Britannia Batteries Ltd.; Northern Aluminium Co. Ltd.; Smith's Potato Crisps; Morris Commercial Cars Ltd., and many others.

He had one of the best collections of pewter in the country and was an authority upon the subject.

A friend, Mr. C. G. Rhodes, says of him: 'Integrity was to him all-important, and he will be very much missed as a friend and counsellor by many.'

Captain John Evans, M.C. [*L*], died on 18 June 1955, aged 72.

Captain Evans practised throughout his career at Llanelly, Carmarthenshire, after a period of training in the offices of the local authority. He began personal practice in 1908 and was elected a Licentiate in 1927.

Among his works are Morfa School, Llanelly, a new nurses' home, a public hall at Pembrey, alterations and additions to numerous cinemas, chapels and school camps. He also carried out work on a new reservoir for Llanelly.

George Edward Tonge [*Retd. F*] died on 12 March, aged 79.

George Tonge was born at Westhoughton, near Bolton, and educated at Bolton High School and Manchester School of Art. He served his articles with a Bolton architect and practised in Southport. In 1903 he joined with Messrs. Halsall and Campbell to form the practice of Halsall, Tonge and Campbell.

Mr. Tonge was best known for the Garrick Theatre in Southport and for a number of cinemas in that town and in Preston—the Grand, the Coliseum, the Palladium and the Palace in Southport, the Palladium and the Ritz in Preston. The Garrick Theatre and the model theatre which Mr. Tonge designed in 1935 for a theatrical charity, and which was known as the Jubilee Miniature Theatre, gained him entry to the Savage Club, of which he was made an honorary member a year ago.

Among Mr. Tonge's other works were the Royal Birkdale Golf Club and a chapel attached to the Congregational Church at Birkdale, Georgian-style premises for Lloyds Bank in Southport, Cheetham Hill Methodist Church, Manchester, Liscard Public Library and a large housing scheme at Westhoughton.

Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENTS

Mr. Christopher Arnold [*A*] has taken up a position with Henry Hill, A.I.A., in San Francisco, California.

Mr. R. J. Bickford [*A*] has been appointed District Architect for British Columbia and Yukon Territory and his address is Department of Public Works, Canada, 1110 West Georgia Street, Vancouver 5, British Columbia, where he will be pleased to receive trade catalogues, etc.

Mr. Bernard J. Gillespie [*A*] has left Messrs. Farmer and Dark and has accepted an appointment with Messrs. **John B. Parkin Associates** [*F*] of Don Mills, Ontario, Canada.

Mr. John L. Hope [*F*] has retired from the post of Regional Architect, Eastern Region, Nigeria, and is taking up the post of Supervising Architect, Mulago Hospital, Kampala, Uganda, where he will be pleased to receive trade catalogues, etc.

Mr. Noshir B. Morena [*A*] has been appointed Senior Architect to the Government of United Province, Public Works Department, Lucknow, India, where he will be pleased to receive trade catalogues, etc.

Mr. N. O. Morhaim [*A*] has been appointed Company Architect to Messrs. J. E. Lesser & Sons Ltd., Green Lane, Hounslow, Middx., and will be pleased to receive trade catalogues at this address.

Mr. W. O. Oakley [*A*] has relinquished his appointment as Schools Architect to the Tyrone Education Committee to take up an appointment in the Department of Works and Public Buildings, Government of Northern Ireland. His address is now 27 Eastleigh Drive, Belfast.

PRACTICES AND PARTNERSHIPS

Mr. N. J. Auckland [*A*] is now in practice at 8 St. Andrew's Crescent, Cardiff (Cardiff 20251, Ext. 11), where he will be pleased to receive trade catalogues, etc.

Mr. G. W. Banfield [*F*] has taken into partnership **Mr. Peter J. Booth** [*A*]. The practice will continue as **Ernest W. Banfield & Son** at 28 Mortimer Street, London, W.1.

Mr. Denis A. Birchett [*A*] has begun private practice at 131 High Street, Brentwood, Essex, having relinquished the position of Company Architect to Shell-Mex and B.P. Ltd. He has been appointed Consultant to Shell-Mex and B.P. Ltd. He will be pleased to receive trade catalogues, etc.

Mr. H. Munro Cautley [*A*] has retired from practice and the firm of **Cautley & Barefoot** is being carried on by his partners, **Mr. Leslie Barefoot,** G.C. [*A*], and **Mr. Peter Barefoot** [*A*] at the same address as previously, namely 22 The Thorofare, Ipswich.

Mr. John D. Cordwell, A.M.T.P.I. [*A*], has resigned from his post as Director of Planning for the Chicago Plan Commission and has begun practice at his address 925 West Winona Street, Chicago, 40, Illinois, where he will be glad to receive trade catalogues, etc.

Mr. H. Edmund Doe [*F*] is now in charge of the Newcastle, New South Wales, office of Messrs. Stephenson and Turner and his address is 149 King Street, Newcastle, New South Wales, Australia.

Mr. A. R. Fox [*F*] and **Mr. A. Douglas Robinson** [*F*] have taken into partnership **Mr. Christopher D. Robinson,** A.M.T.P.I. [*A*]. The title of the firm will remain as before—**Sir Guy Dawber,**

Fox and Robinson, and the address 122 Wigmore Street, W.1.

Mr. William T. Glare [*A*], until recently Chief Assistant and Senior Group Architect in Coventry City Architectural Department, has now begun practice at 19 The Parade, Leamington Spa (Leamington Spa 1127).

The former practice of Lee and Askew at Croft Cottage, Stamford Street, Ashton-under-Lyne, has been dissolved by mutual consent of the partners, and **Mr. A. H. Lee** [*A*] is now architect to Messrs. Frederic Robinson Ltd., Unicorn Brewery, Stockport, Cheshire, and in private practice at Longeaves, Bredbury Green, Romiley, Cheshire (Woodley 2820), where he will be pleased to receive trade catalogues, etc.

Mr. Percy Howard [*F*] of 88 Mosley Street, Manchester, has taken into partnership **Mr. Ernest Geoffrey Seddon** [*A*]. The firm will practise under the name of **Howard and Seddon** at the above address.

Mr. J. V. Mather [*A*] and **Mr. J. R. Nutter** [*A*] have formed a partnership and will practise at Portland House, 103 Portland Street, Manchester 1, where they will be pleased to receive trade catalogues and samples, under the title **Mather and Nutter.**

Mr. Frank Rutter [*F*] having resigned from the partnership of **Norman and Dawbarn** [*FF*], Mr. Graham Dawbarn [*F*], Mr. R. F. Lloyd Jones and Mr. Alick Low [*F*] have taken into partnership **Mr. Herbert Wilson**, A.M.I.C.E., **Mr. Walton H. Lindsay**, A.M.T.P.I. [*A*], and **Mr. Greville Rhodes** [*F*], all of whom had previously been Associates in the firm. **Mr. Frank Rutter** is now practising from 7 St. Martin's Avenue, Epsom, Surrey (Epsom 3224), where he will be pleased to receive trade catalogues, etc.

Mr. Clive Pascall [*F*] has taken into partnership **Mr. Peter Watson** [*A*]. The practice will be styled **Clive Pascall and Peter Watson** and will be continued at 24 Half Moon Street, London, W.1.

Mr. Francis Pollen [*A*] has taken into partnership **Mr. Philip Jebb** [*A*] and they will practise at 140 Sloane Street, London, S.W.1. (SLOane 6383).

CHANGES OF ADDRESS

Mr. J. E. Aylward [*A*] has moved to 22 Blakebrook, Kidderminster, Worcs. (Kidderminster 2363), where he will be pleased to receive trade catalogues, etc. Representatives by appointment only.

Mr. P. N. Bailey [*A*] has moved to 1 Halford Road, Stratford-upon-Avon, Warwickshire,

The address of **Mr. Dennis Ball** [*A*] is now c/o Señor Luis Bosch, Calle Enrique Granados 26, Barcelona, Spain.

The address of **Mr. John M. Clarke** [*A*] is now Wereham Manor, Wereham, King's Lynn, Norfolk.

The address of **Mr. C. M. Dixon** [*A*] is now 4 Hannan Street, Elizabeth South, South Australia.

Mr. Patrick J. Doran [*A*] has removed from 5 Vivian Gardens, Wembley, and requests that trade catalogues, etc., be discontinued until further notice.

Mr. Walter W. Fisk [*F*] and **Mr. Sidney H. Fisk** [*L*] have changed their address to 6A Bedford Square, London, W.C.1 (LANgham 3108–9).

Mr. F. H. Herrmann [*F*] has changed his address to 6A Bedford Square, London, W.C.1 (MUSeum 2616), where he will be pleased to receive catalogues, etc.

The address of **Mr. Wyn Jones** [*A*] is now c/o Messrs. Max Lock and Partners, 364 Arassa, Alwiyah 2/2/21, Baghdad, Iraq.

Mr. A. G. Keiffer [*A*] has moved to Flat D, 127B Brudenell Road, Leeds 6.

Mr. Alister McDonald [*F*] has moved his Special Planning Office from 10 D'Arblay Street, W.1, to his main offices at Aldine House, 10–13 Bedford Street, London, W.C.2 (TEMple Bar 0794/5 and 8169). Cable and telegraphic addresses remain the same, i.e. Cyparch London and Cyparch Lesquare London respectively.

Mr. Paul Ospalak [*A*] has changed his address to Apartment 11, 169 West 8th Street, North Vancouver, B.C., Canada.

Mr. G. M. Wickens [*A*] has moved to Forester, Ash, Canterbury (Ash 395).

Mr. Bernard T. R. Wiggins [*A*] has moved from his former offices in the Strand and is now practising from Oak Tree Cottage, Willey Broom Wood Lane, Chaldon, Caterham, Surrey (Caterham 4403).

PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

Fellow returning to England mid-July 1957 seeks association with either large office with overseas commitments where wide experience of private practice in the Far East and tropical Africa will be of value or a developing country practice where a second partner would be welcome. Capital available. Box 78, c/o Secretary, R.I.B.A.

Fellow with over 20 years' wide experience, academically trained in both classical and contemporary design (5 years' studio lecturer on design), own practice temporarily dormant but willing to merge potential contracts, seeks partnership or position with prospects thereof with London, Brighton or south coast firm of standing. Some capital available. Box 87, c/o Secretary, R.I.B.A.

Associate, 20 years' experience all types of work, desires partnership or position leading thereto in practice in East Riding of Yorkshire. Small capital available. Box 92, c/o Secretary, R.I.B.A.

1956 RIBA BALL

ARCHITECTS' BENEVOLENT SOCIETY

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Wednesday December 12th

Tickets, £2.5.0 each, including supper, are obtainable by all interested in building from the Hon. Organizing Secretary c/o C. J. Epril, Esq., 55 Pall Mall, S.W.1.

Experienced architect (47), capital available, seeks partnership in established practice in or near Cheshire. Box 93, c/o Secretary, R.I.B.A.

Associate (40) with wide general experience in responsible position, keen, for the past 18 months in private practice, seeks partnership in the Greater London area. Car owner, capital available. Box 94, c/o Secretary R.I.B.A.

Associate (35), with very varied experience with architects in private practice, and having own small practice, seeks partnership or position leading thereto in Chichester or Eastbourne. Some capital available. Box 95, c/o Secretary, R.I.B.A.

Associate (37) seeks junior partnership or position leading thereto in a London office engaged in ecclesiastical and superior traditional work. Some capital available. Box 98, c/o Secretary, R.I.B.A.

Young architect with sound practice, complete with staffing difficulties, wishes to meet kindred spirit with view to mutual assistance. Box 99, c/o Secretary, R.I.B.A.

Architect's practice for sale, established 25 years, busy town South Lincolnshire. Excellent office suite and all equipment. Box 104, c/o Secretary, R.I.B.A.

Associate, English (47), University trained, at present with own practice in most densely populated area of South Africa, wishes to return to Britain and desires partnership. Capital available. Wide experience pre-war and post-war in South Africa and in the southern counties. Box 105, c/o Secretary, R.I.B.A.

WANTED AND FOR SALE

Wanted. One second-hand double elephant or antiquarian drawing board and T-square in reasonable condition. Also one left-handed double elephant T-square. Box 97, c/o Secretary, R.I.B.A.

For sale. 2 plan chests, 1 drawing trestle, 1 large board, 1 set instruments, 1 spirit level, 1 T-square, 1 5 ft. rule. Quantity tracing paper. Box 100, c/o Secretary, R.I.B.A.

Executors have for disposal drawing office furniture and equipment suitable for architect starting practice. Box 107, c/o Secretary, R.I.B.A.

ACCOMMODATION

Architect with practice in Hertfordshire requires small office together with reception office, preferably in West End or Westminster area of London. To be used only for consulting and interviewing at present. Would consider sharing office with another architect. Box 96, c/o Secretary, R.I.B.A.

Associate has one or two rooms available in good position, centre of town 20 miles south of London. Furniture available if required. Box 101, c/o Secretary, R.I.B.A.

Offices required by firm of architects. 3 rooms essential. Victoria district or City. Box 102, c/o Secretary, R.I.B.A.

Office suite of 3 rooms required by architect in central or south-west London. Would consider sharing secretarial services. Box 103, c/o Secretary, R.I.B.A.

Accommodation available shortly in architects' offices, Richmond Green, with telephone. Box 106, c/o Secretary, R.I.B.A.

The Royal Institute of British Architects, as a body, is not responsible for statements made or opinions expressed in the JOURNAL.

Economial! Providentical!

"Up here," said Baron Rabbit, "only 6 feet underground, is the children's play-room."

"Very modernly equipped," said his guest.

"On the contrary," replied the Baron. "Those pipes have been here for centuries. They are sewer pipes: the kind that stay down so long they save the surface people much money. They resist acid and abrasion, and are glassy smooth. My children play on them constantly. And even the outside of the pipes is so smooth the rascals cannot tear their trousers on them. So you see, they save me money too!"

"Salt glazed vitrified clay pipes are very economial," said the guest.

"Salt glazed vitrified clay pipes are most providentical!" said the Baron.

Put down Salt Glazed Vitrified Clay Pipes and Conduits—they stay down for centuries!

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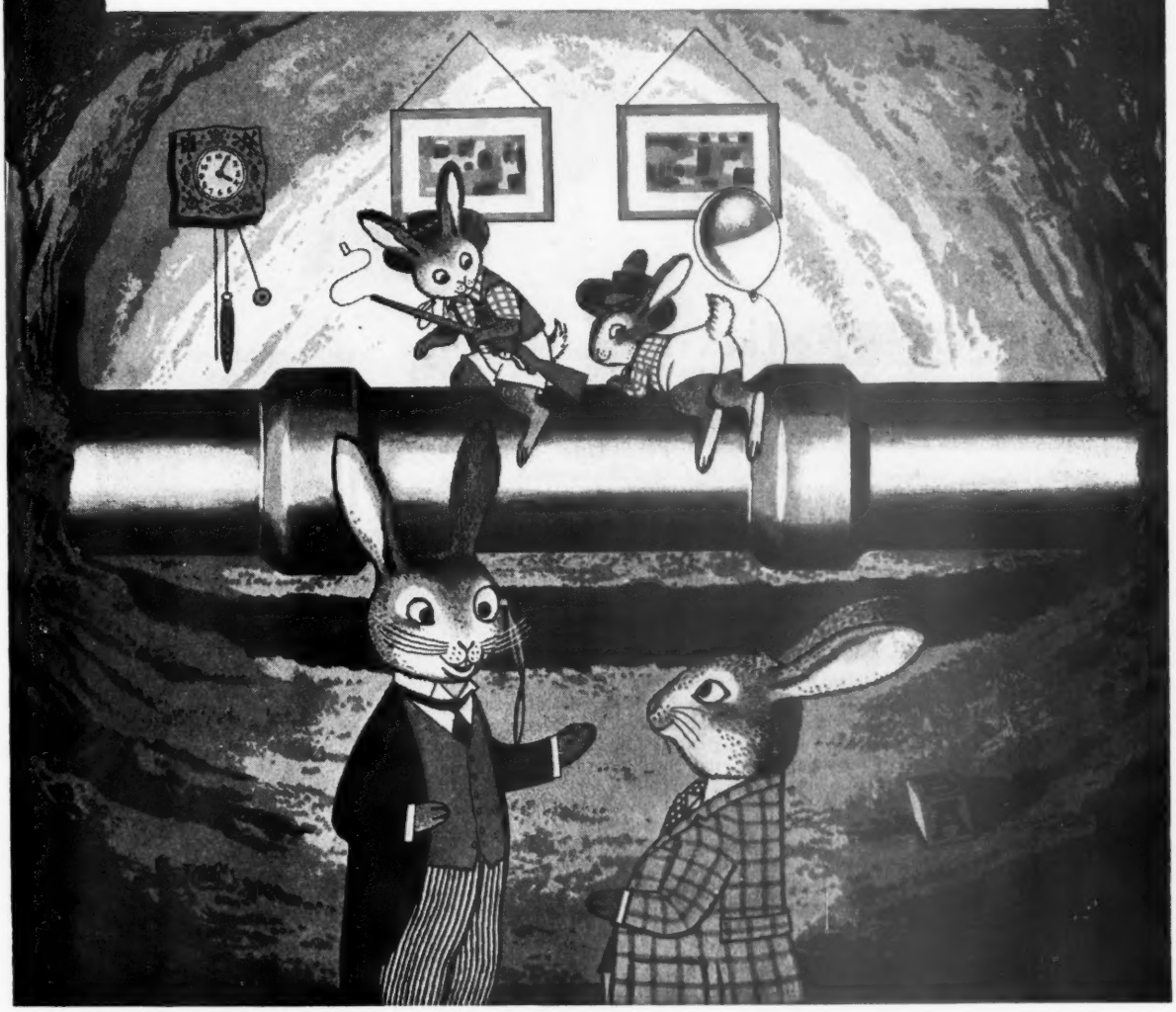


WALLSPAN BEATS THE WEATHER

Londoners will remember the winter of 1955/6 as the coldest on record. During one of the more chilly spells when the thermometer stood at eleven below, the new Bata Store in Oxford Street was in a near-completed state—the exterior finished but for the cladding of the main facade.

Fortunately, the architects had specified 'Wallspan' for this contract, work went ahead as planned and the building was ready for occupation on the scheduled day. In these conditions conventional building techniques would have come to a complete standstill. Using 'Wallspan', no delay was experienced (except on the occasions when the fixers' bare hands froze to the aluminium 'Wallspan' members) and the cladding was completed in six working days.

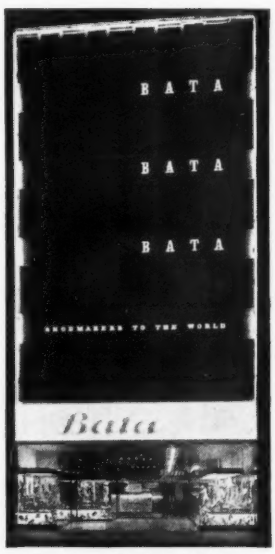
Why WALLSPAN was used

A glass curtain wall was chosen for three reasons: speed of construction, light weight, and easy maintenance. Of the various methods considered, 'Wallspan' was thought to meet all three considerations most effectively. Lightweight, all-aluminium 'Wallspan' members with their clean lines and crevice-free profiles used in conjunction with glass-faced infilling panels fulfil points 2 and 3—while in the particular circumstances point No. 1 was more than amply justified!

Further design advantage

When the project was still on the drawing board a further advantage came to light. The architect of the Bata Store does a great deal of shop design where one of the obvious problems is that of integrating the Company name as part of the overall design of the front.

The 'Wallspan' 'grid' offered a happy solution in this case where it is used as a framework for some very large scale typography. The effect can be judged by this after-dark photograph.



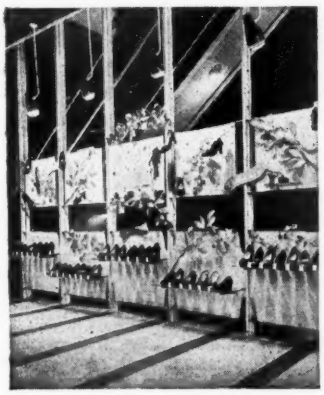
Bata Store, London. Architects: Bronek Katz and R. Vaughan.

WHAT MANCHESTER DOES TODAY!

But long before the London store was started, 'Wallspan' had been used on a small scale but in a very interesting way in another Bata Store in Manchester. As well as a more-or-less conventional application as a feature window in the main facade, it has been taken *inside* to form a part-glazed display screen to the staircase. Using 'Wallspan' in this way offers great scope, especially for showrooms, shops, reception areas, etc., where it is desired to carry the theme of the exterior decor within doors to impart a feeling of continuity to interrelated areas. Since the 'Wallspan' is protected from the weather the range of infilling materials is greatly extended, blank spaces can be left in the grid to be occupied by display fitments—and so on. In such circumstances the 'Wallspan' members themselves can be colour anodized or painted.

A *Bata Store, Manchester. Architects: Bronek Katz and R. Vaughan.*

Interior of the Manchester Store, showing use of Wallspan for screening to staircase well, incorporating display fitments. V



THE BUGBEAR OF EXTERIOR MAINTENANCE

Meyer Dumore Factory, Park Royal, Architects: Mark Jennings, Son & Partners (Architect-in-charge: H. M. Cunningham A.R.I.B.A.)

Presumably when all our cities are 'smokeless zones' the constant deterioration of fabric through atmosphere corrosion will cease to be the pressing problem it is now. Until that long-wished-for day, the use of 'Wallspan' for outside walls goes a long way to solving it.

The aluminium alloy from which the 'Wallspan' members are extruded is extremely resistant to corrosion. Even in 'heavy' industrial atmospheres, once initial oxidation has taken place, subsequent pitting is of negligible proportions. In fact, the oxide layer which forms during the first few months of exposure acts as an extremely efficient barrier against the further inroad of corrosive airborne agents. For this reason it is better not to attempt to keep the 'Wallspan' in 'new' condition by means of abrasives but merely to wash off surface dirt with a mild detergent and water, leaving the oxide layer intact.

The same treatment is recommended for aluminium windows. It will be readily appreciated that in these circumstances—'Wallspan' with aluminium windows and a suitable glass or aluminium-faced infilling—maintenance is reduced to large-scale window cleaning for which provision may be made by installing a cradle runway around the eaves of the building. This has been done at the Meyer Dumore Factory, at Park Royal, illustrated above.

Dining room Extension to the 'White Hart' Hotel, Sonning. Architect: Eric G. V. Hives, L.R.I.B.A., Chartered Architect.

STANDARD WINDOWS IN A PERIOD SETTING

The 'White Hart' Hotel at Sonning—always a popular resort for Thames-side tourists—has recently opened a new dining room extension.
Briefing to architect included:

1) Extension must harmonize *outside* with existing old building.
2) Extension *inside* must be light and airy.

One aspect of the design that helps to reconcile these diverse requirements is the extensive use of small-pane type BS.990 Standard Metal Windows and Doors (supplied rustproofed by Williams & Williams). White paint emphasizes the glazing bars to give that 'cottage casement' look. Slim metal sections let in lots of light and air . . . And standard windows are as economical as may be!

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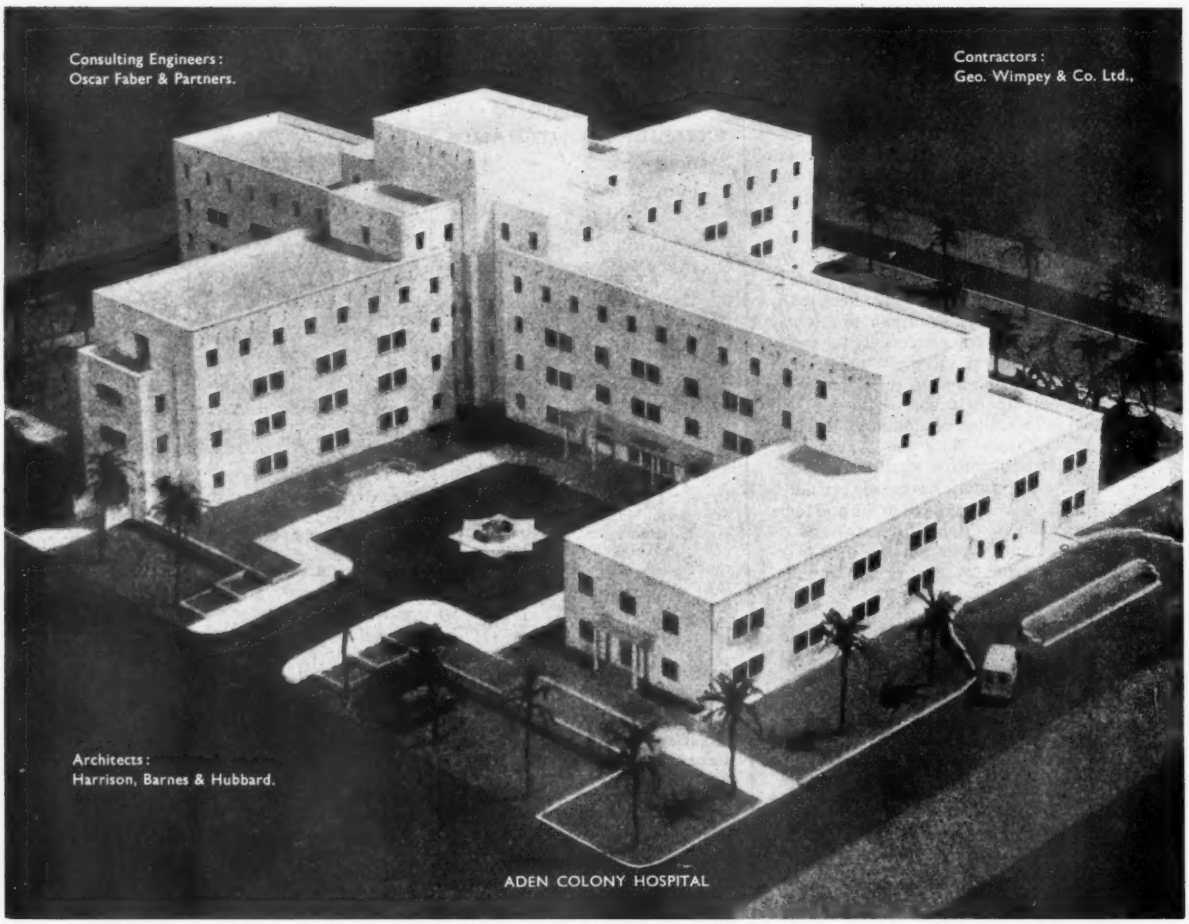

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- strength and resiliency
- little tendency to splinter
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- shelves
- studding
- enamelled furniture
- interior and exterior finishes
- tanks
- railway sleepers
- ladder stock
- shiplap
- gymnasium floors
- ballroom floors

FOR FURTHER INFORMATION concerning Canadian woods contact The Commercial Counsellor (Timber), Canada House, Trafalgar Sq , London, S.W.1.

Reproduced here is figure of Pacific Coast Hemlock

This advertisement is one of a series featuring Canadian Douglas Fir, Spruce, White Pine, Red Pine and Western Red Cedar.

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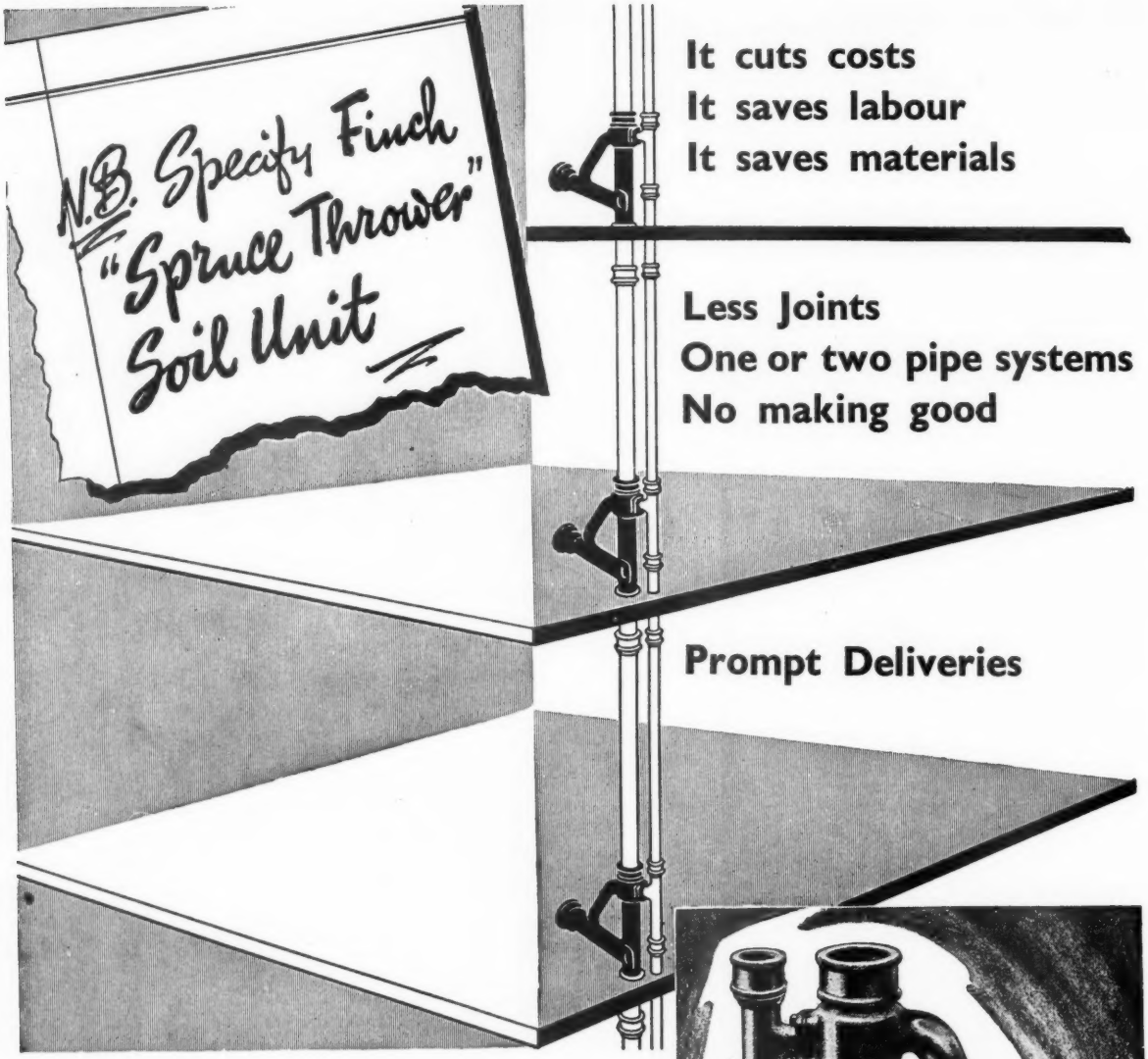

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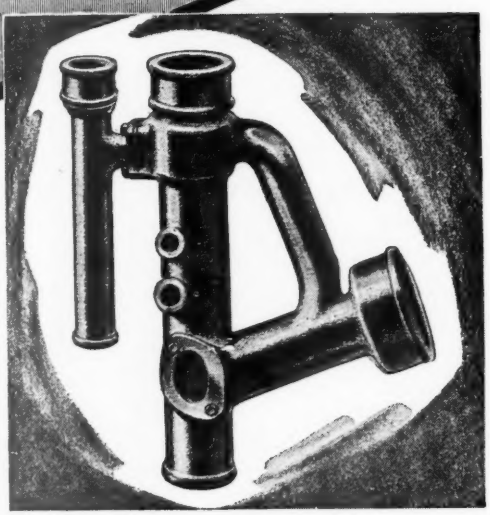

As the fame of the Finch 'Spruce-Thrower' Soil Unit spreads, more and more Architects, Sanitary Engineers and Building Contractors are making a note to specify its use. In all flats and offices where the closets are situated one above the other—and connected to the soil pipe by a pan junction—this unit has proved to be the simplest and most economical form of drainage to install. For full information and advice on installing the 'Spruce-Thrower' Soil Unit, write today for the fully illustrated technical brochure to Mr. Howes, Manager of the Soil and Drainage Goods Division, at the address below; or telephone him at Valentine 8888, Extension 8.

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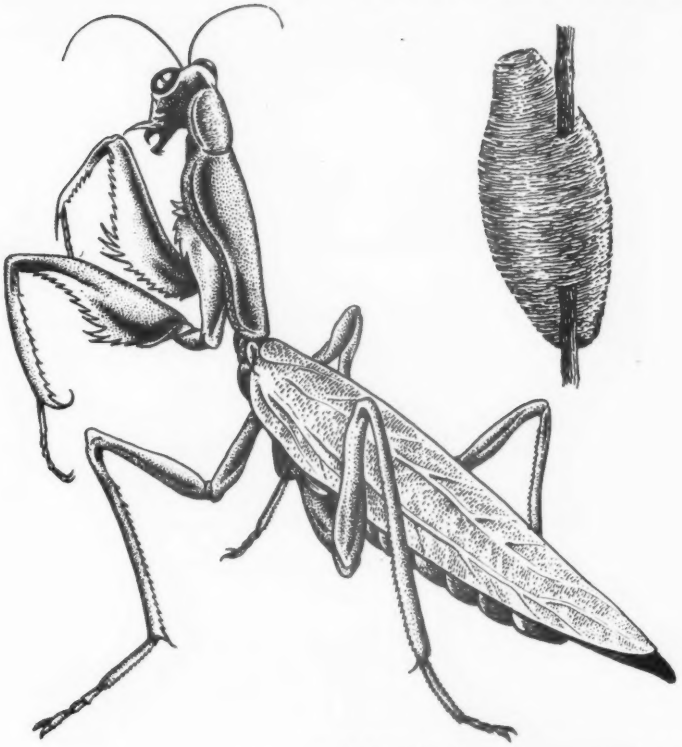
Praying MANTIS *is the name . . .*



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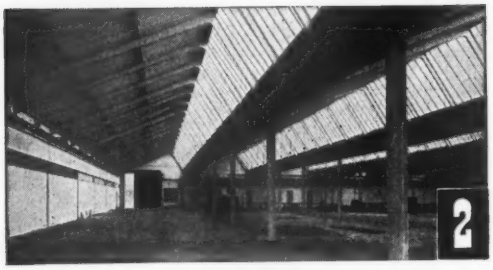
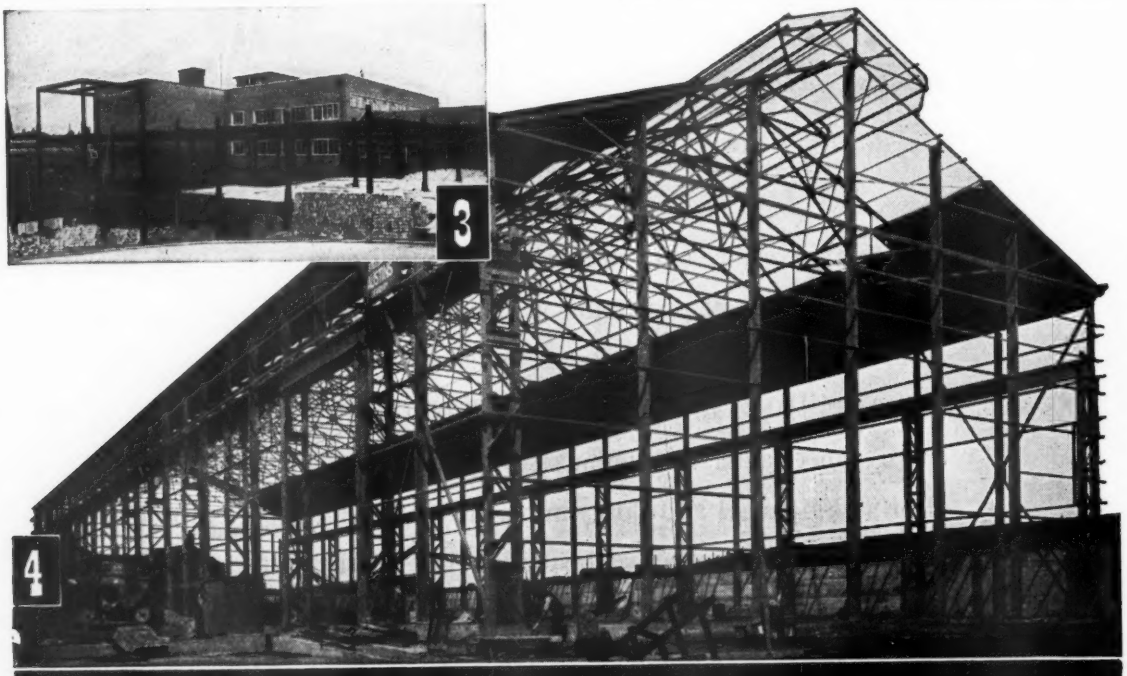


1 New Stores Building for Messrs. Birlec Ltd., Furnace Manufacturers, Erdington, Birmingham.

2 Interior view of factory for Messrs. Brook Motors Ltd., Barnsley.

3 Extension to factory for Messrs. F. E. Fox & Son Ltd., Biscuit Manufacturers, Batley.
Architects : Smith & Curry, Heckmondwike.

4 Fabrication shop for prefabricating ships for Messrs. Clelands (Successors) Ltd., Wallsend-on-Tyne.



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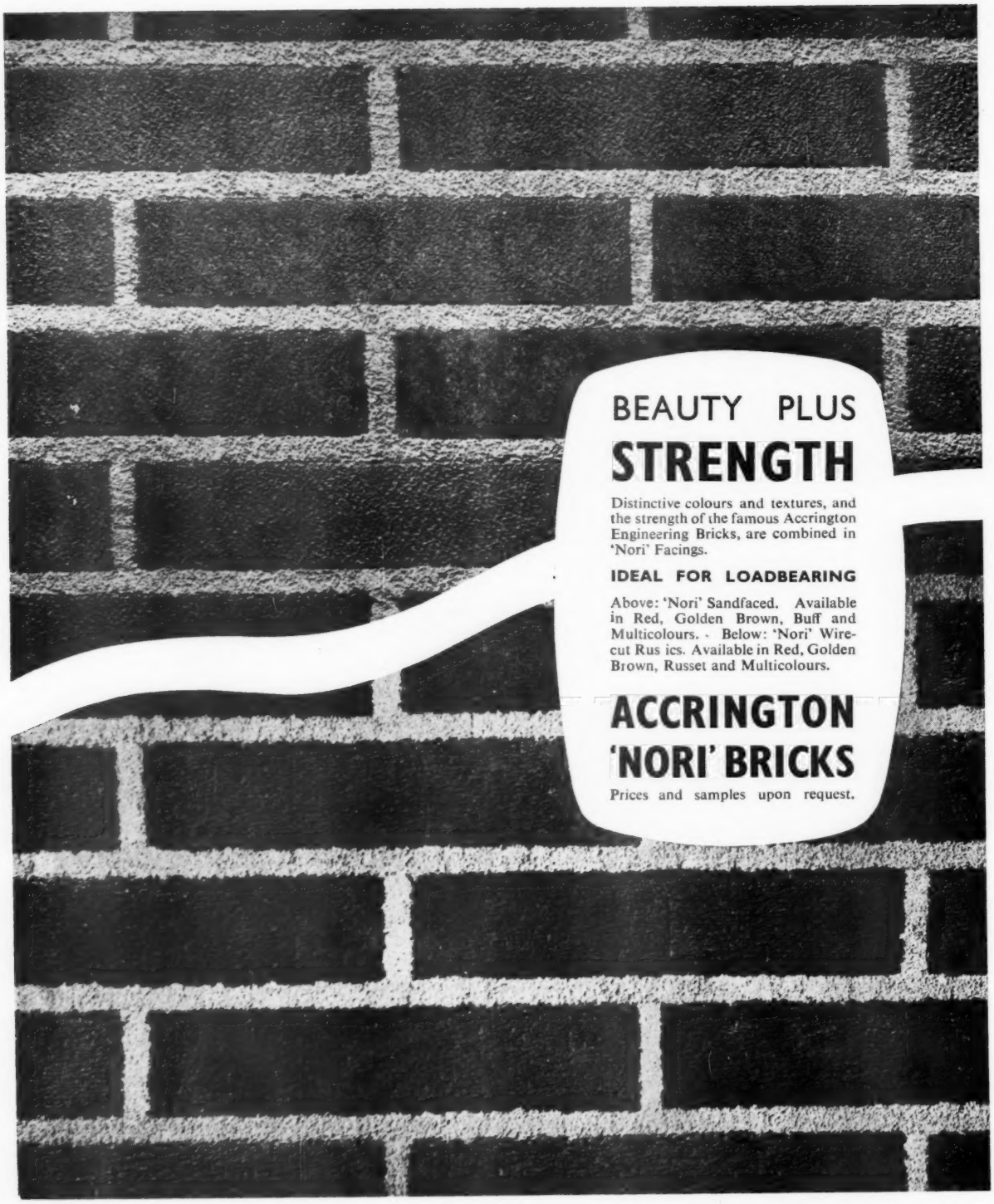
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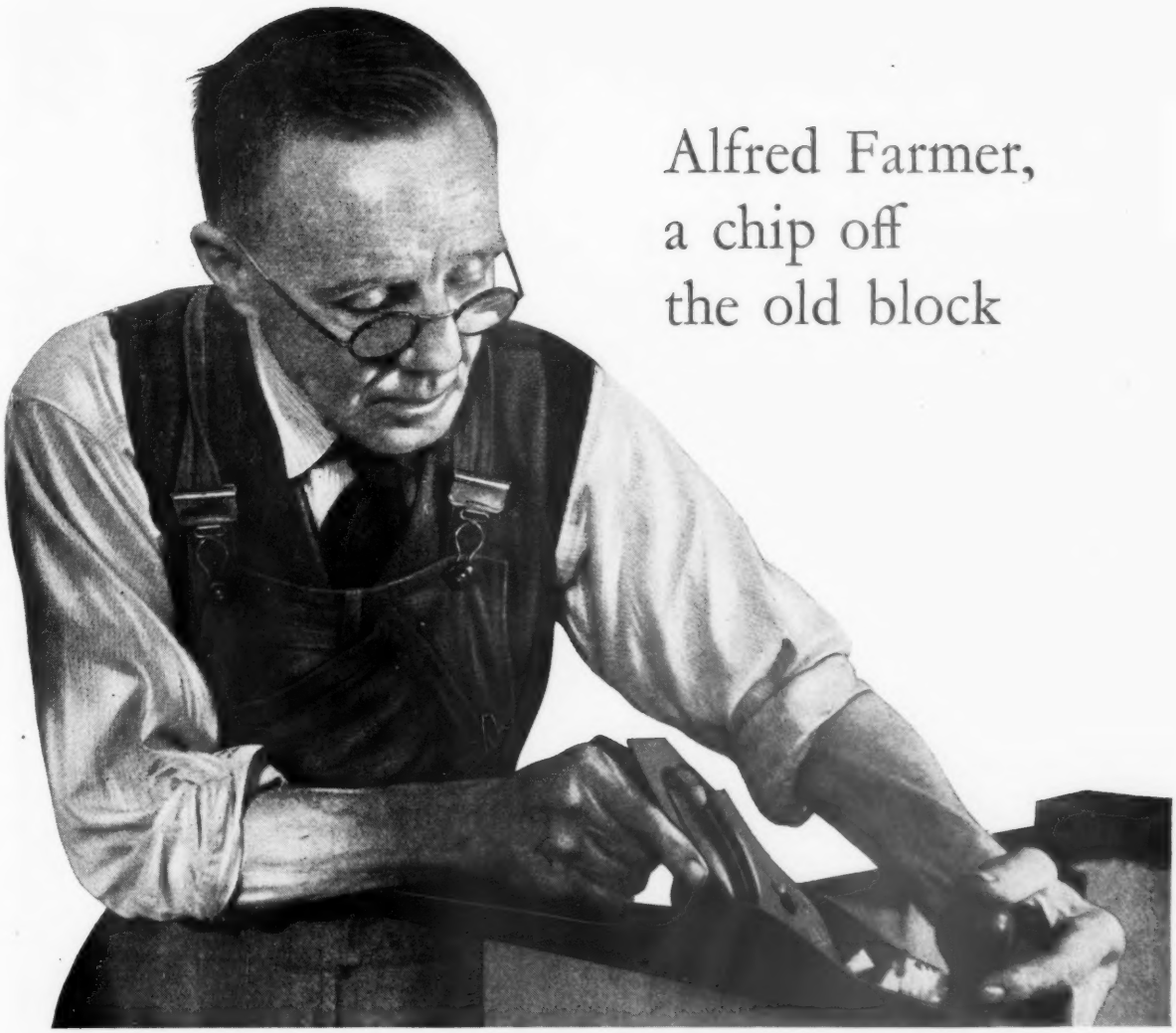

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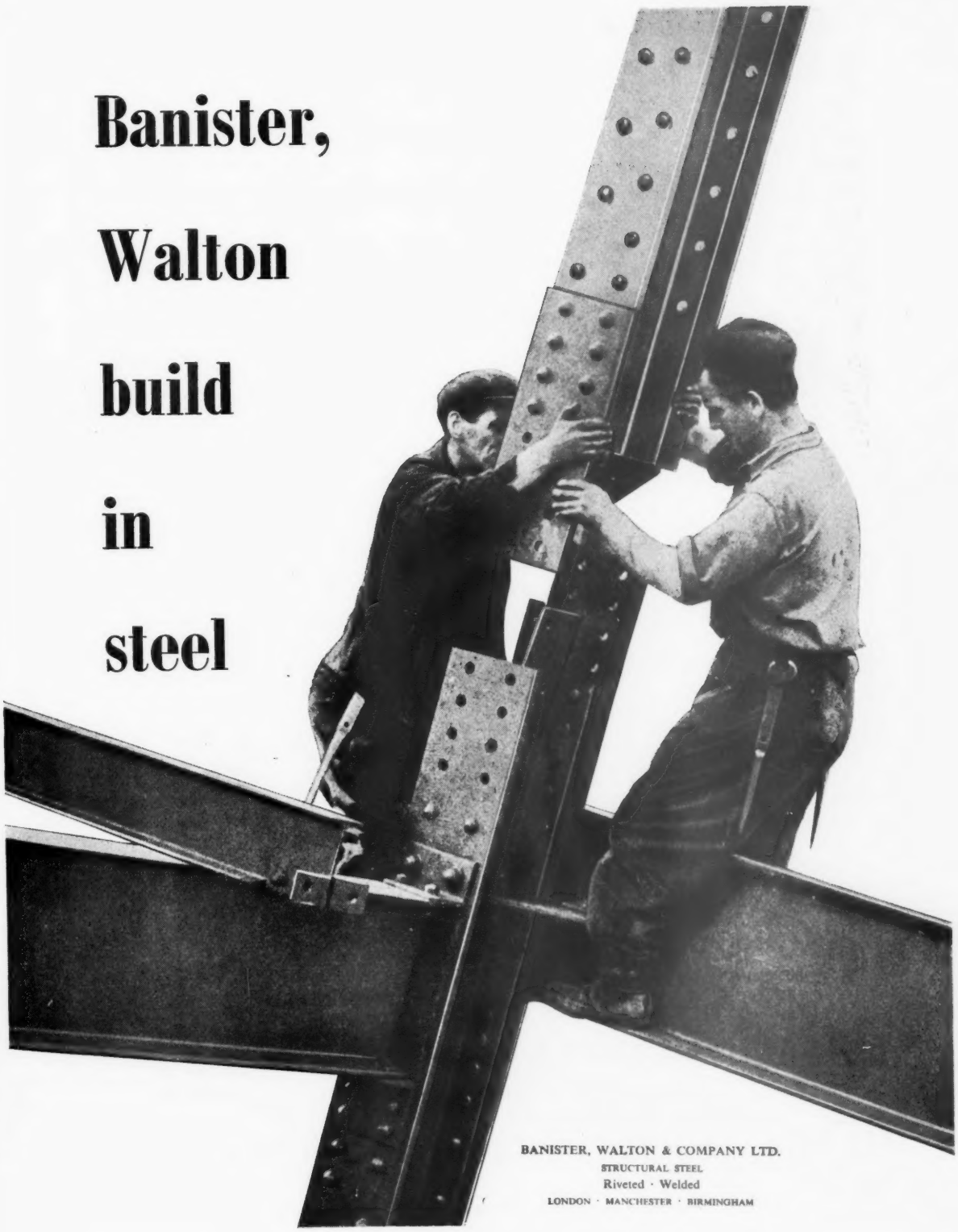

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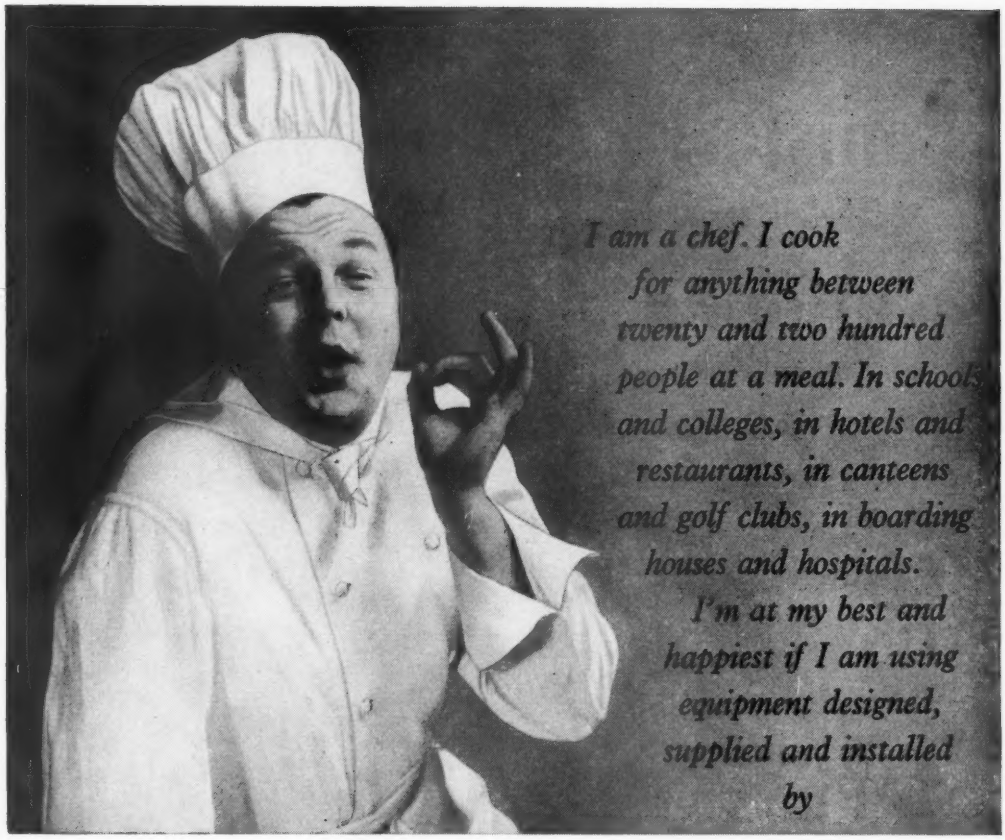

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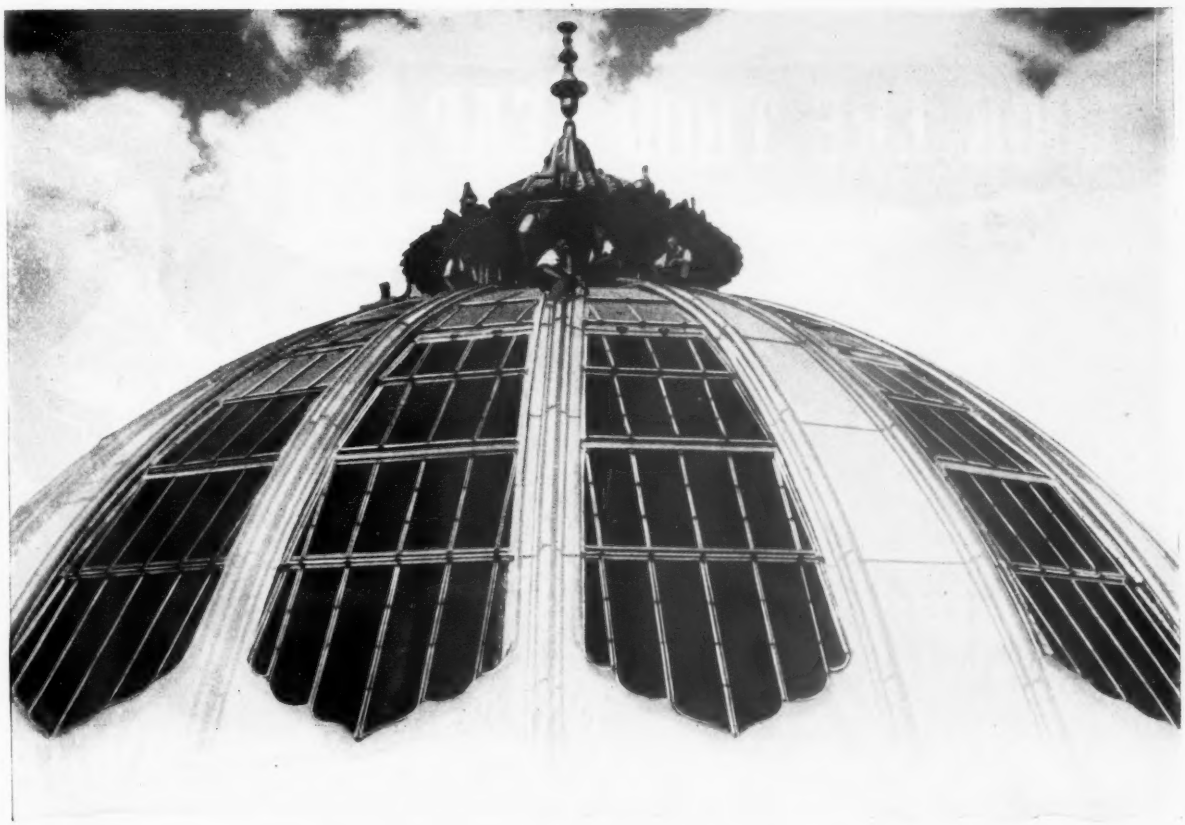

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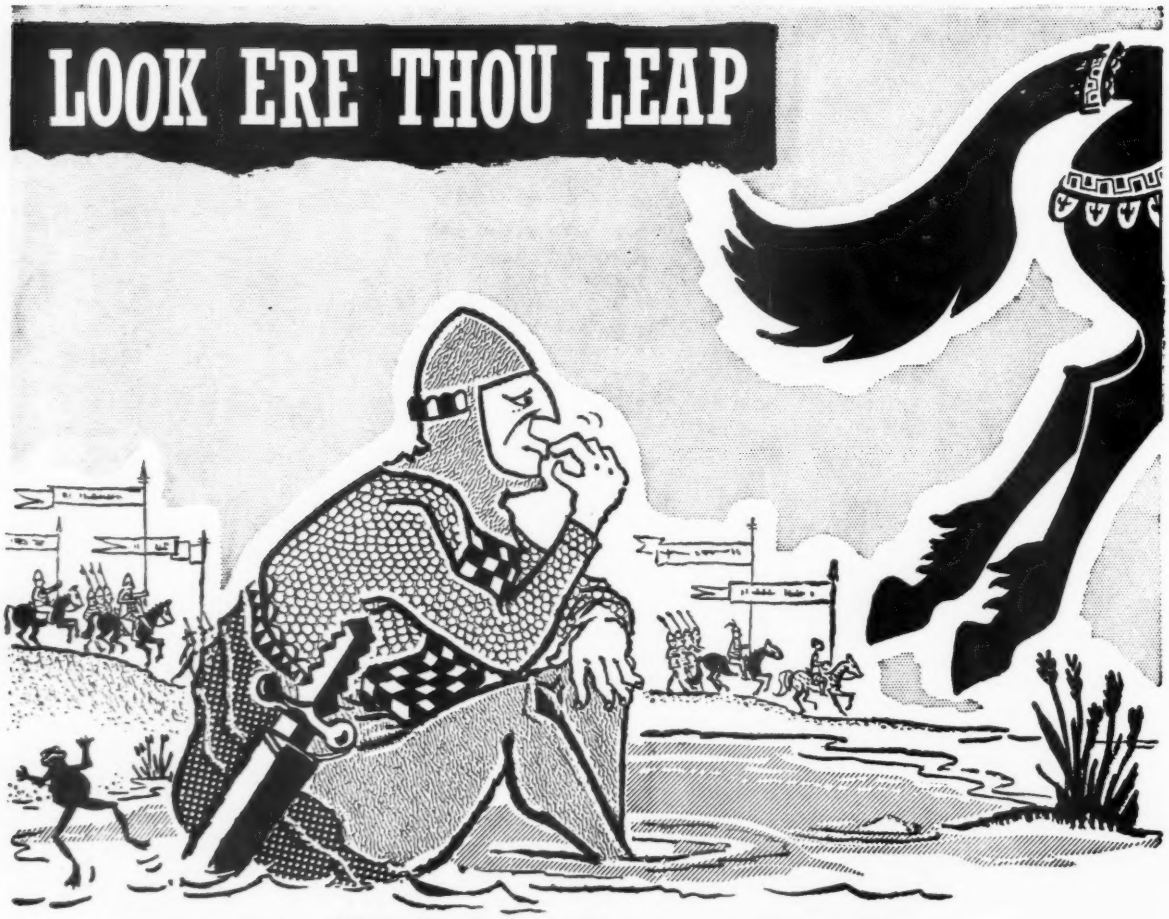

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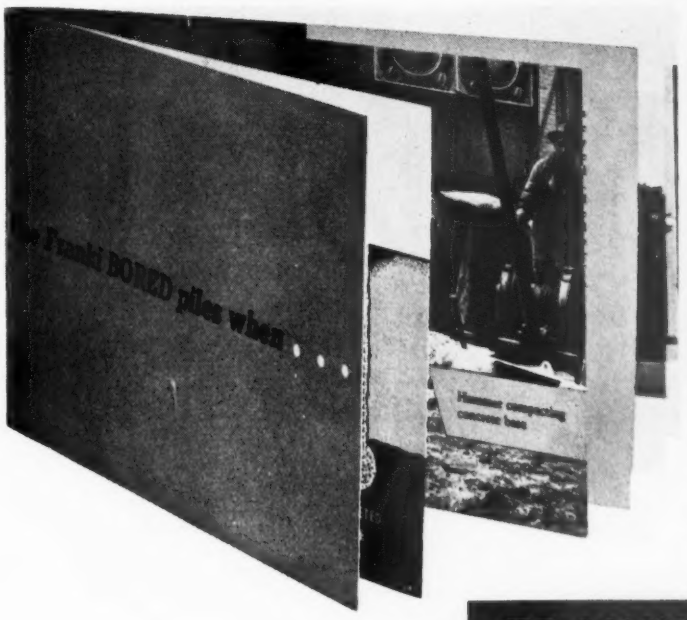

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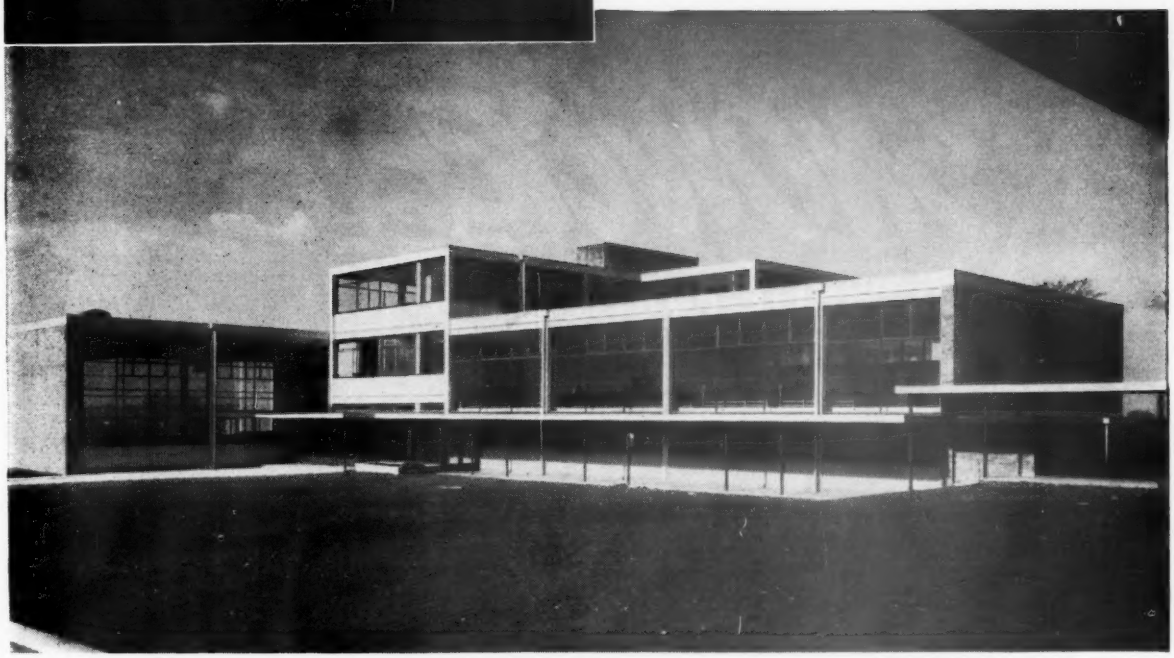

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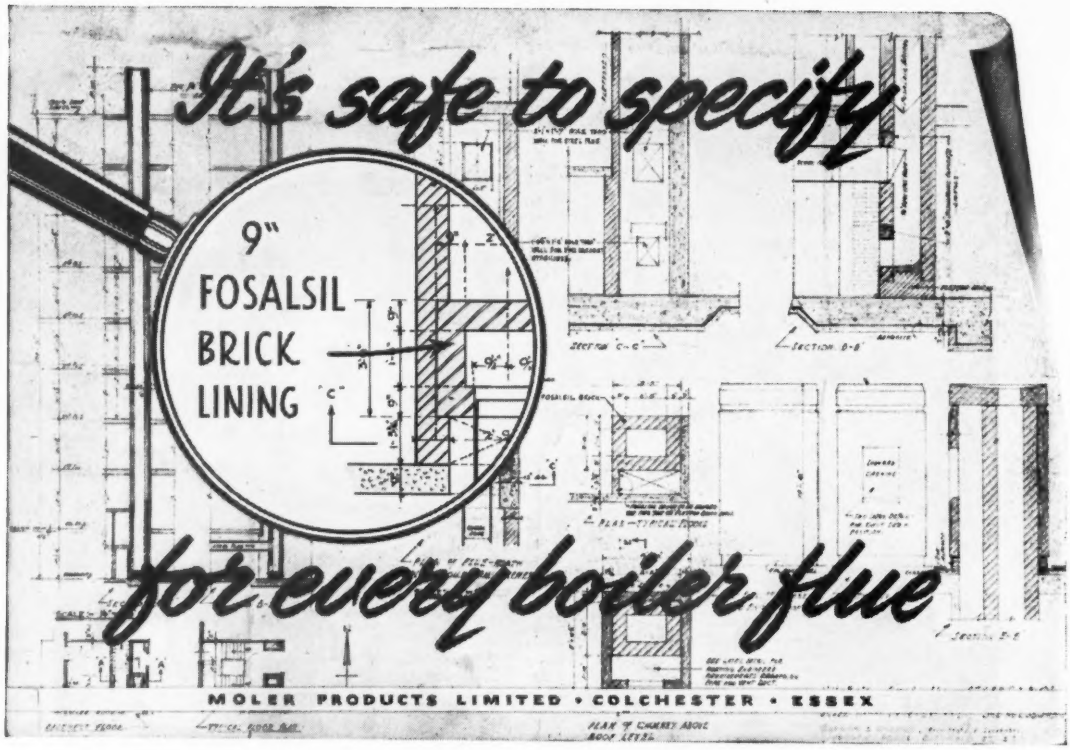

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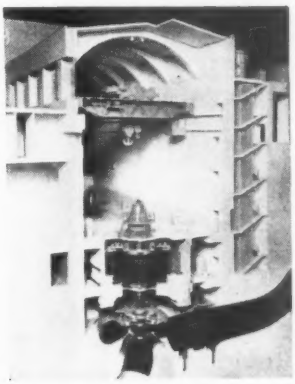

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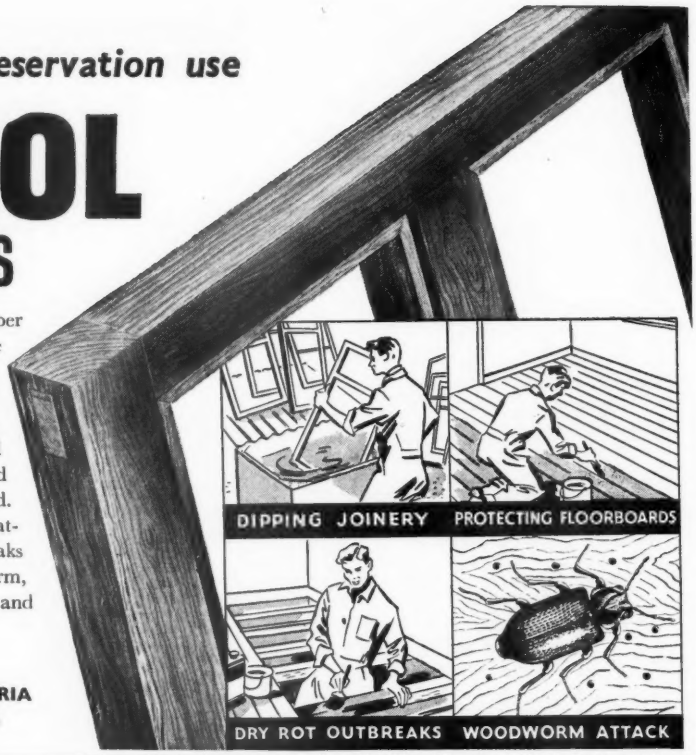

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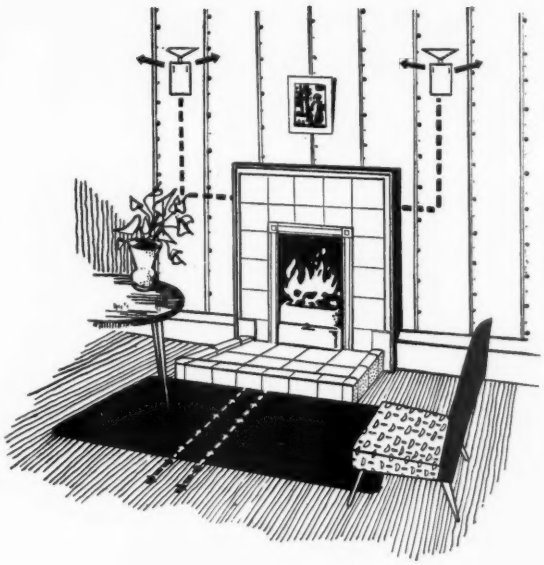

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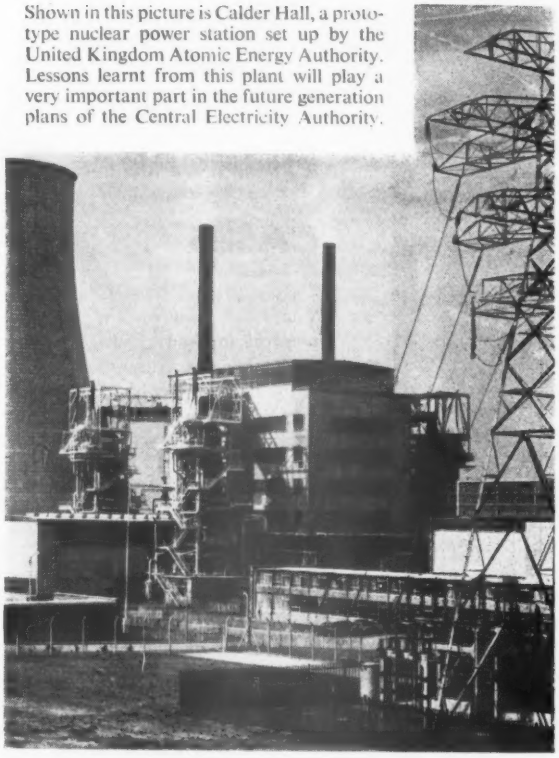

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As the demand for electricity grows, nuclear energy will become more and more important in supplying the power upon which the economic future of the country so largely depends.

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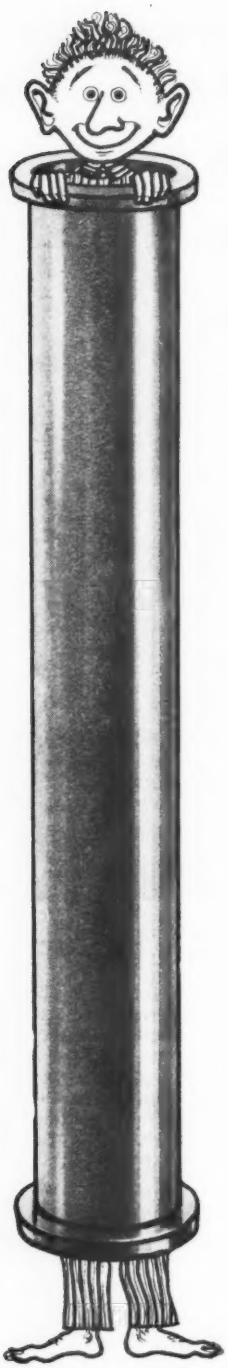

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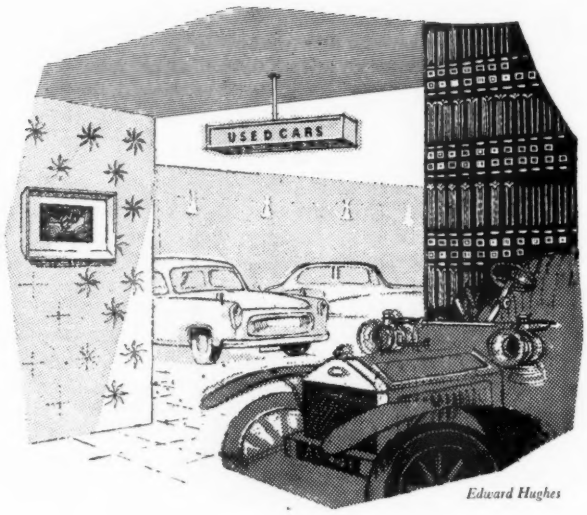

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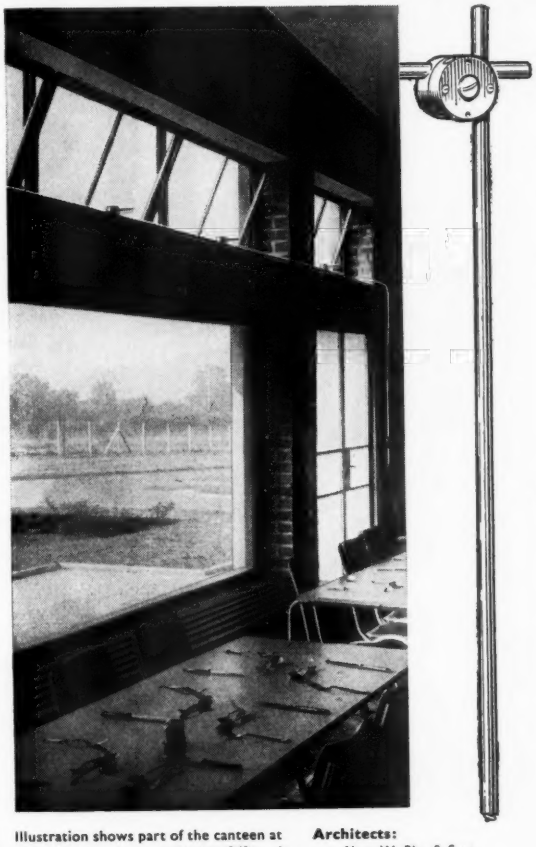

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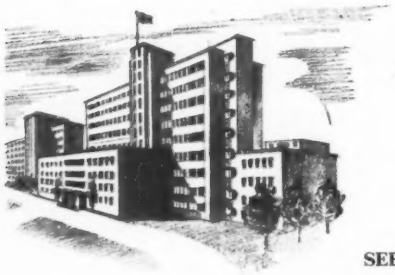

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Building Research Station Digest

No. 94

NOVEMBER 1956

Domestic Heating - Estimation of Seasonal Heat Requirements and Fuel Consumption in Houses

Introduction

In Digest 93 a review is given of the estimated capital costs of various domestic heating installations, from the conventional open fire to the specialist-designed heating system. In addition to capital costs, however, it is also important to have some idea of running costs. The present Digest indicates how an assessment can be made of the probable fuel consumption and hence the running costs of house-heating systems during the normal heating season.

In houses the heat from the main space-heating appliance is normally supplemented by heat from other sources—e.g. hot water and cooking appliances, electric lighting, and so on. Furthermore, the internal temperatures may vary from room to room, from hour to hour and through the season, according to the controllability of the heating system and the preferences of the occupants. Thus the temperatures actually experienced in houses may often depart from arbitrary design standards, and even if the system is designed in the first place to maintain a particular internal temperature pattern the occupants may not run the system as originally intended. Consequently, the methods normally used for estimating the overall heat requirements in, for instance, office buildings are generally inappropriate.

The range of temperature variations obtaining in practice is not as great as might at first be expected. The thermal inertia of the building and of the heating system limits the hour-to-hour variation of temperature, while the flow of heat through the house limits the differences in temperature from room to room; nominally unheated bedrooms receive a measure of background heating in this way.

From statistical examination of the data obtained in the various investigations of house heating undertaken by the Station it has been possible to establish the "house mean temperatures" that are reasonably typical during the heating season for houses over a large part of the country. Given a house mean temperature which is representative for a particular type of heating system, the total heat losses can be calculated and, knowing the extent of the incidental heat gains from all sources, the annual fuel requirements can be estimated. The method summarized here is given in detail in a recent paper—"Domestic Heating in Practice—Temperatures and Seasonal Heat Requirements" by E. Danter and J. B. Dick (The Institute of Fuel Conference on Domestic Heating, May 1956).

House mean temperatures

The temperatures obtained from the investigations mentioned above are divisible into three main groups roughly corresponding to high, medium and low standards of heating, the house mean temperatures respectively being 61°F, 56°F and 54°F. With an average outside winter temperature of 43°F these values give inside—outside temperature differences for the three heating standards of 18°, 13° and 11°F. The temperature difference of 18°F corresponds to a reasonably full use of central heating, although lower values, say 16°F, may arise when the heating in bedrooms is not run to full capacity; the lowest value (11°F) is typical of the inside—outside temperature differences obtained when the heating is by a conventional system (i.e. open fires, stoves, etc.); the lower middle value (13°F) is representative of conditions when, for example, an open fire in the living room is supplemented by background heating in other rooms. For many practical purposes however it is necessary to recognize only two broad categories—i.e. temperature differences of about 18°F when the whole house

is heated and about 12°F when the heating is confined mainly to the lower part of the house.

Heat losses

Given representative inside—outside temperature differences for the heating season, the next step is to estimate the amount of heat that must be liberated to produce the given average temperature difference. Some of the heat will be lost by conduction through the structure and the remainder by ventilation.

Conduction losses. The conduction heat loss can be estimated from the areas and thermal transmittances of the structural components (for detailed guidance see Digest 35). Extensive data on heat transmittance through various materials and types of construction are available in a recent book[1] and also in publications of the Institution of Heating and Ventilating Engineers[2]. The heat transmittance values (i.e. "U" values) given in these publications are primarily for estimating the heat losses from a building in connection with the design of the heating installation. When estimating seasonal heat requirements the average heat transmittances throughout the heating season should be taken. For most constructions, the average heat transmittance throughout the heating season is little different from the published "U" values mentioned, but there are exceptions. The most important differences for constructions common in houses are those relating to windows and the roof. For instance, the heat transmittance value normally taken for single glazed windows is 1.00 but when allowance is made for the insulation provided by the frames of wooden windows and for curtains drawn at night a heat transmittance value of 0.6 might be assumed[3]. For a pitched roof with tiles on battens and a plaster ceiling the thermal transmittance to consider is about 0.42 B.t.u./sq.ft h °F compared with usual value of 0.56. Similarly, a pitched roof with tiles on battens and felt and a plaster ceiling has an average thermal transmittance of about 0.35 compared with the normally accepted figure of 0.43.

To obtain the average conduction heat loss per °F in therms for a heating season of say 33 weeks, the average hourly heat loss per °F for the whole building should be multiplied by 5544 (i.e. 33 weeks × 7 days × 24 hours) and divided by 100,000 (i.e. 100,000 B.t.u. = 1 therm).

Ventilation losses. The heat lost by ventilation can be estimated on the basis that 0.02 B.t.u. is required to raise the temperature of 1 cu. ft of air through 1°F. For example the heat carried away by one air change per hour in a house with 8-ft ceilings will amount to 0.16 B.t.u./h per °F temperature-difference for each sq. ft of floor area. Thus the average ventilation heat loss per °F for a heating season of 33 weeks for a house of 1,000 sq. ft will amount to about 9 therms for 1 air change per hour (see Digest 35 for more detailed figures).

A detailed investigation of ventilation rates in houses gave two air changes per hour as the average ventilation rate for occupied houses in sheltered areas. On exposed sites the average air change rate during winter was found to be about 2.5. It is reasonable to assume an air change rate of 2.0 per hour, but the rate could range from 1 to 3 depending partly on the extent to which windows are opened.

By way of illustration, the seasonal heat losses in therms per degree F for some of the common forms of dwelling are given in Table I, which covers three standards of insulation and air change rates of 1 to 3.

For the purposes of this Digest the three standards of insulation included in the table correspond to the following details of construction for which the seasonal average thermal transmittances are given in brackets:

Low standard

Walls	...	9-in solid brick	(0.43)
Floor	...	Suspended timber	(0.35)
Roof	...	Tiles on battens	(0.42)
Windows	...	Single-glazed with curtains	(0.60)

Medium standard

Walls	...	11-in. cavity brick	(0.30)
Floor	...	Solid concrete	(0.20)
Roof	...	Tiles on battens (felted)	(0.35)
Windows	...	Single-glazed with curtains	(0.60)

[1] "The Thermal Insulation of Buildings" by Nash, Comrie and Broughton. H.M. Stationery Office, London, 1955.

[2] "The Computation of Heat Requirements for Buildings": Institution of Heating and Ventilating Engineers, London, 1950 (also included in "A Guide to Current Practice, 1955," Institution of Heating and Ventilating Engineers).

[3] But see later for allowance for solar heat gains through windows.

TABLE I: SEASONAL HEAT LOSS (THERMS/°F) FOR DWELLINGS OF 1,000 SQ. FT FLOOR AREA

Air changes per hour	Insulation standard								
	Low			Medium			High		
	1	2	3	1	2	3	1	2	3
Semi-detached house	60	69	78	47	55	64	32	41	50
Terraced house	54	63	72	42	51	59	29	37	46
Flatted (ground floor) house	51	60	69	37	46	55	31	40	48
Flatted (top floor) house	55	64	73	45	54	63	25	34	43

High standard

Walls	...	Incorporating additional insulation	(0.15)
Floor	...	Solid concrete	(0.20)
Roof	...	With insulated ceiling	(0.10)
Windows	...	Single-glazed with curtains	(0.60)

Heat inputs

The heat inputs required to balance the estimated heat losses will comprise not only the heat provided by the space heating equipment, but also the miscellaneous heat gains such as body heat from the occupants, solar radiation, cooking and water heating; these gains together make an important contribution particularly when the space heating standard is low. The following notes will indicate the probable magnitude of these various contributions:—

Body-heat production. In a household of two adults and one child the average rate of useful heat contribution would be at least 500 B.t.u./h, and during the heating season this could amount to about 25 therms.

Solar radiation. There is considerable heat gain during the heating season from solar radiation, direct radiation from the sun being supplemented by diffuse radiation from the sky and by radiation reflected from the ground outside the building. The seasonal radiation heat gain per sq. ft of glass according to the orientation will be approximately as follows:—

South facing window	0.68 therms per sq. ft of glass
East and West window	0.41 therms per sq. ft of glass
North window	0.25 therms per sq. ft of glass
Average	0.44 therms per sq. ft of glass

By way of illustration, the area of windows in a semi-detached house average about 0.19 times the floor area, so making an allowance for the area of the frames, the solar heat gain during the heating season for a house of 1,000 sq. ft total floor area will be of the order of 70 therms.

Lighting, radio and miscellaneous electrical input. For houses of medium and low rateable values the average annual consumption of electricity for lighting and miscellaneous uses, not including electrical cooking or water heating, is generally about 400 kWh. During the heating season electrical input of this order would give a useful heat input of about 10 therms. For larger houses it is reasonable to assume that in general the heat input would be somewhat higher.

Cooking. Data obtained from studies of occupied houses suggest that the space heating input from gas cookers during the heating season would amount to some 60 therms and from electrical cookers to about 35 therms.

TABLE II: ESTIMATED HOUSE EFFICIENCIES (FROM RIDLEY REPORT)

Inside flue, with heating for 5 hours or more per day

		per cent
1.	Electric fire	100
2.	Gas fire	
	(a) Radiant	50-60
	(b) Convector	60-70
3.	Closed stove burning coke	65-75
4.	Openable stove	
	(i) Burning coke	55-65
	(ii) Burning coal	45-55
5.	Improved open fire, with restricted throat	
	(a) Convector	
	(i) Coke	55-65
	(ii) Coal	45-55
	Non-convector	
	(i) Coke	50-50
	(ii) Coal	40-50
6.	Improved open fire, without restricted throat	
	(a) Convector	
	(i) Coke	50-60
	(ii) Coal	40-50
	(b) Non-convector	
	(i) Coke	45-55
	(ii) Coal	40-50
7.	Stool-bottom grate with front fret	35-45

Water heating. Water heating systems, especially circulating systems, often make a large contribution to the general space heating of dwellings. Even where compact water heating units are used there can be an appreciable output from standby losses and from water cooling in draw-off pipes. There will also be some heat gain from hot water between the time it is run off and when it is discharged to outside, but it is difficult to assess the actual amount of this contribution. In general, in a small independent solid-fuel boiler serving a hot water system with short unlagged flow and return pipes to a lagged indirect cylinder it may be expected that of the total calorific value of the fuel used about 50 per cent will contribute to space heating. About half this amount will be given off as radiation and convection from the boiler casing and the remainder from the pipes and cylinder.

The additional space heating contribution from the hot water circuit of a back boiler system with a compact layout of piping and a lagged cylinder would be about 10 per cent of the calorific value of the fuel. With gas or electric water heaters the heat emission into the house generally will be less than with the solid fuel circulating systems mentioned above. The lowest heat gain will probably occur where separate sink and bath heaters are installed, but there will be cases with long pipe runs or poor lagging where the heat gain would amount to more than 2 therms per week.

Space heating. The appropriate efficiency to consider when assessing the effectiveness of a domestic heating system is the "house efficiency" and this takes into account not only the efficiency of the appliance and the amount of heat delivered to the room where the appliance is situated but also the heat delivered into other rooms and heat recovered from a flue as it traverses rooms above. The summary in Table II gives estimates of the house efficiencies of a number of typical appliances.

For typical central heating systems the "house efficiency" could be taken as about 70 per cent.

Annual heat requirements and fuel consumption.

Given the average seasonal temperature difference between indoors and out, the conduction and ventilation heat losses, the miscellaneous heat input from ancillary sources,

the "house efficiency" of the space heating system, and the calorific value of the fuel, it is possible to estimate the annual heat requirements and fuel consumptions for a variety of conditions. Take for example a semi-detached house of 1,000 sq. ft with a *good* standard of thermal insulation, which is to be centrally heated to maintain an average temperature difference of 18°F over a heating season of 33 weeks. An average air change rate of 2 per hour is assumed. From Table I it will be estimated that the seasonal heat loss will be 740 therms (i.e., 41×18). The miscellaneous heat inputs (body and solar heat, gas cooking and electric lighting) would be expected to total about 170 therms leaving 570 therms to be delivered from the heating system. Assuming a house efficiency of 70 per cent the heat input required would be of the order of 800 therms corresponding to just about 3 tons of solid fuel at a calorific value of approximately 270 therms per ton (see Table III).

It is of interest to note that the foregoing data can also be used to estimate the temperature difference a given amount of fuel consumption would produce, for example, a semi-detached house with a medium standard of insulation where the space heating is provided by an open fire and back boiler. Assuming a total space heating efficiency of 40 per cent, the heat delivered by the heating appliance from about 3 tons of fuel would be 320 therms; this, together with the miscellaneous heat gains of 170 therms, would maintain an average temperature difference of about 9°F for a heating season of 33 weeks.

The method outlined above can be used to obtain approximate estimates of the space heating costs with different heating systems. The method has been illustrated using meteorological date appropriate to the Outer London area; for other regions, the calculation should strictly be made using the appropriate length of heating season and the corresponding mean external temperatures, and possibly allowing for factors such as increased exposure. Such corrections would probably only be worthwhile for regions with climates very different from that in the London Area, the main purpose of the calculation being to obtain the comparative running costs with different heating systems, which can be considered with the capital costs discussed in Digest 93.

TABLE III

Fuel	Typical calorific value or heat content
Anthracite	330 therms per ton
Coal (bituminous)	270 therms per ton
Coke	270 therms per ton
Light fuel oil	800 therms per 500 gal.
Gas	1 therm per 200 cu. ft.
Electricity	34 therms per 1,000 units

Note: 1 therm = 100,000 B.t.u.

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